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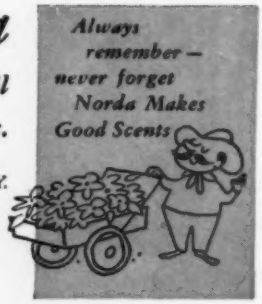

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Drug and Cosmetic Industry

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Reprints of cover illustrations are available on request.

The Drug and Cosmetic Industry is published monthly by Drug Markets, Inc., Frazer V. Sinclair, President and Treasurer, Thomas R. Farrell, Vice-president and Secretary. Publication Address, 28 Renne Ave., Pittsfield, Mass., U. S. A. Editorial and General Office, 101 West 31st St., New York 1, N. Y., U. S. A.

Business Manager, Frazer V. Sinclair; Advertising Manager, P. W. Alexander; Advertising Representatives, Walter M. Brauneis, C. R. Keeley; Production Manager, Katherine Hyde; Circulation Manager, Harry G. Kelbly.

Midwestern Advertising Representative: Dwight Early and Sons, 100 No. LaSalle St., Chicago 2, Telephone, CEntral 6-2184.

Subscription price—$3.00 a year, in advance, Foreign Countries, $5.00. Single copies, 35c; Back issues 50c. Entered as Second Class Matter, January 1, 1928 at the Post Office at Pittsfield, Mass., under the Act of March 3, 1879. Member of Audit Bureau of Circulations.

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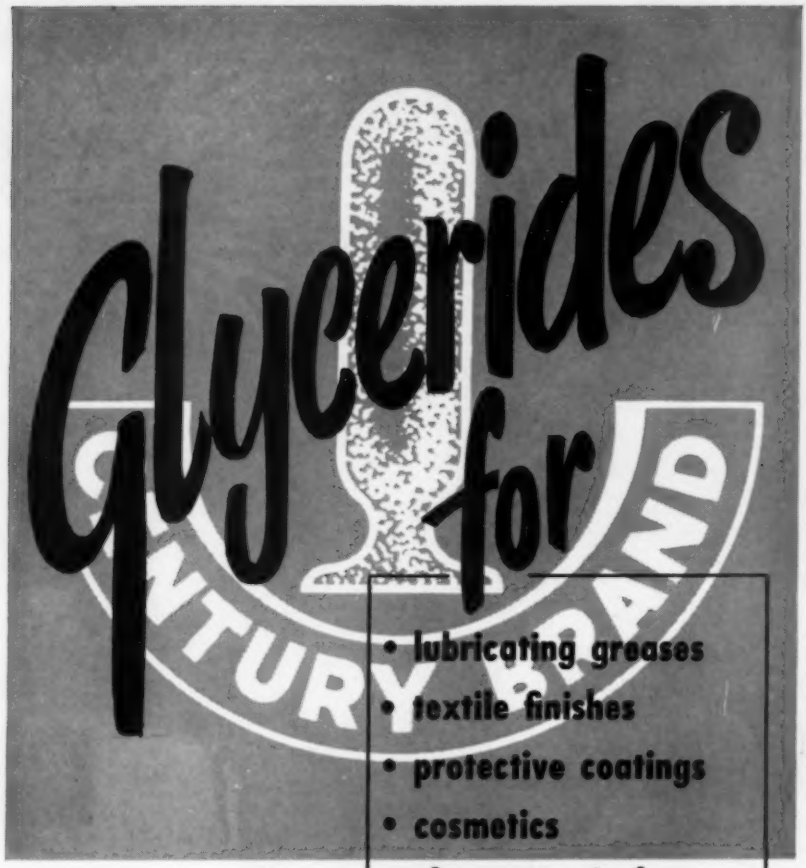

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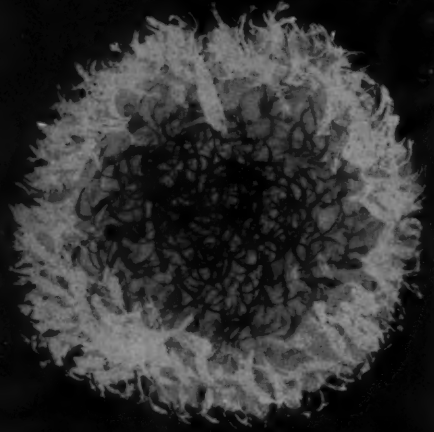

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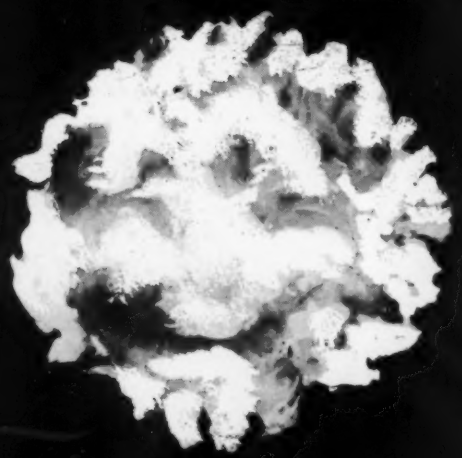

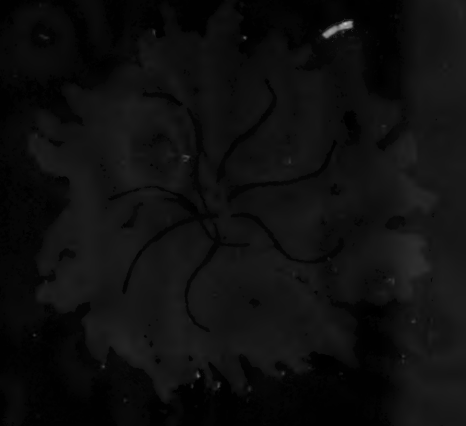

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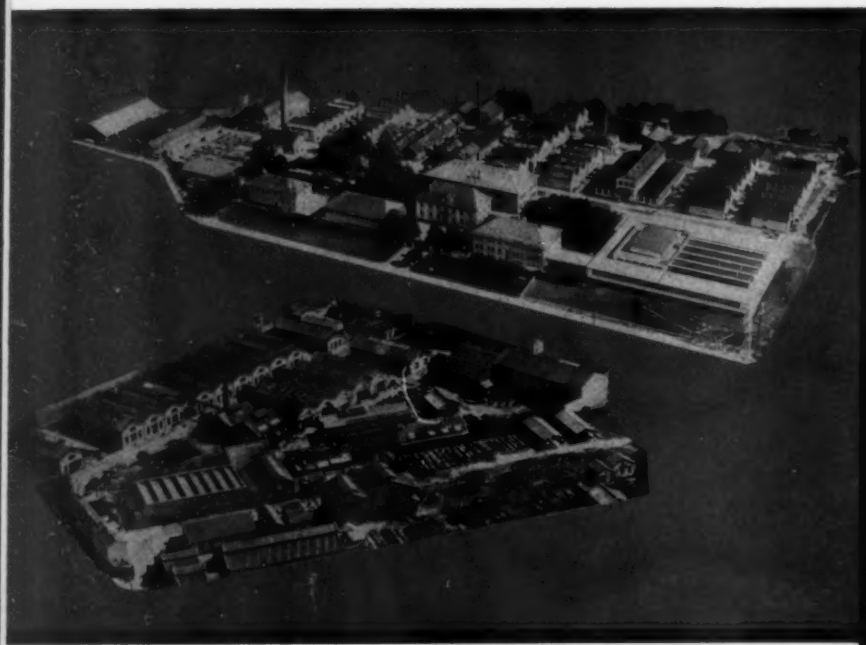

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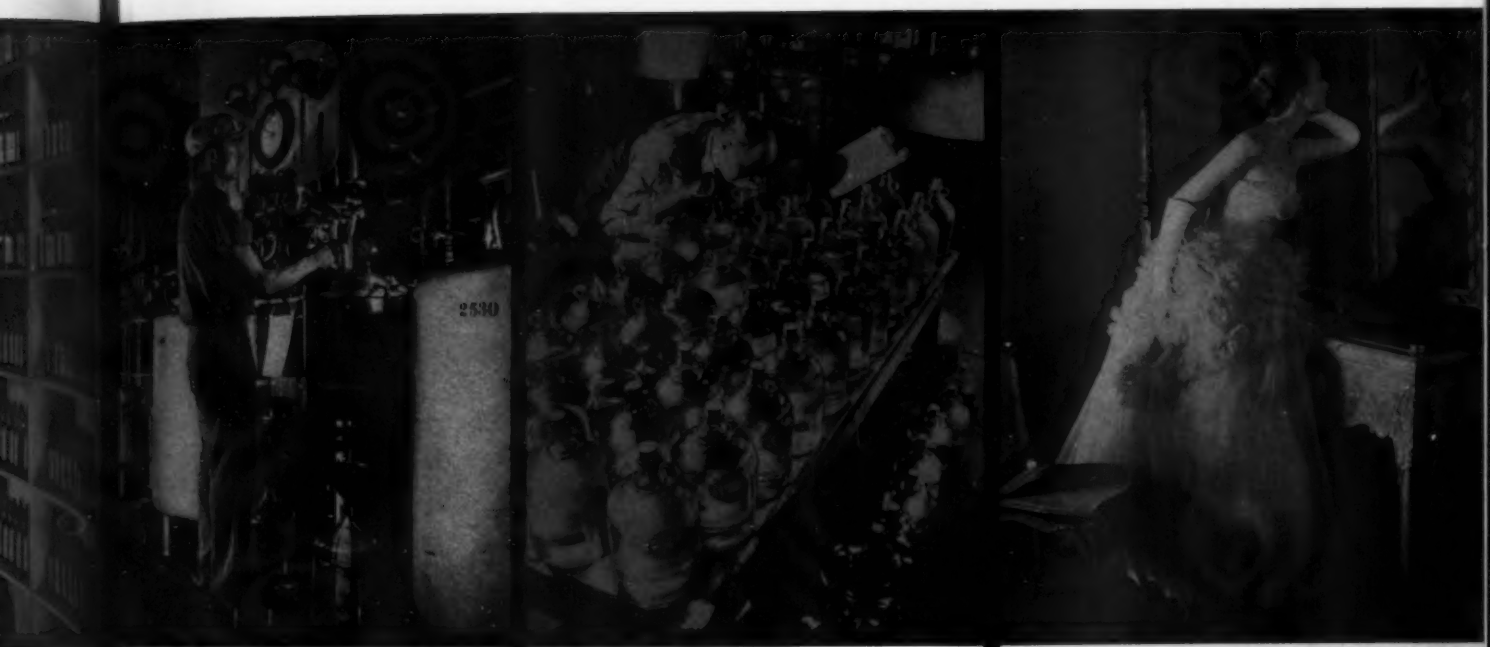

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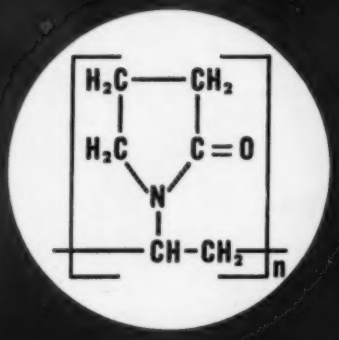

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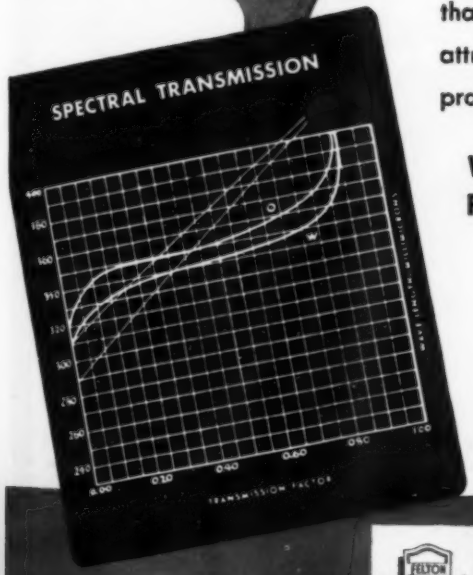

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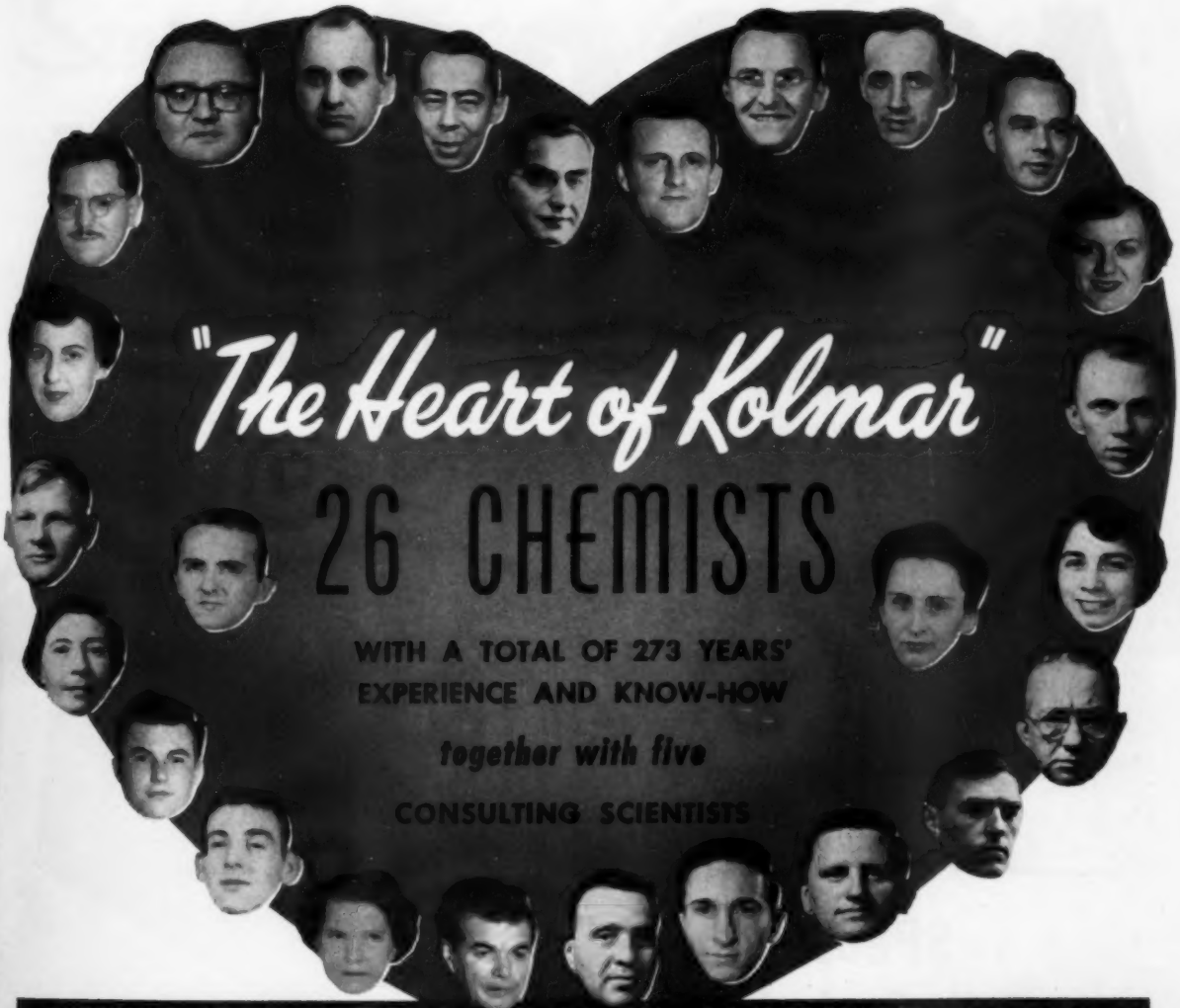
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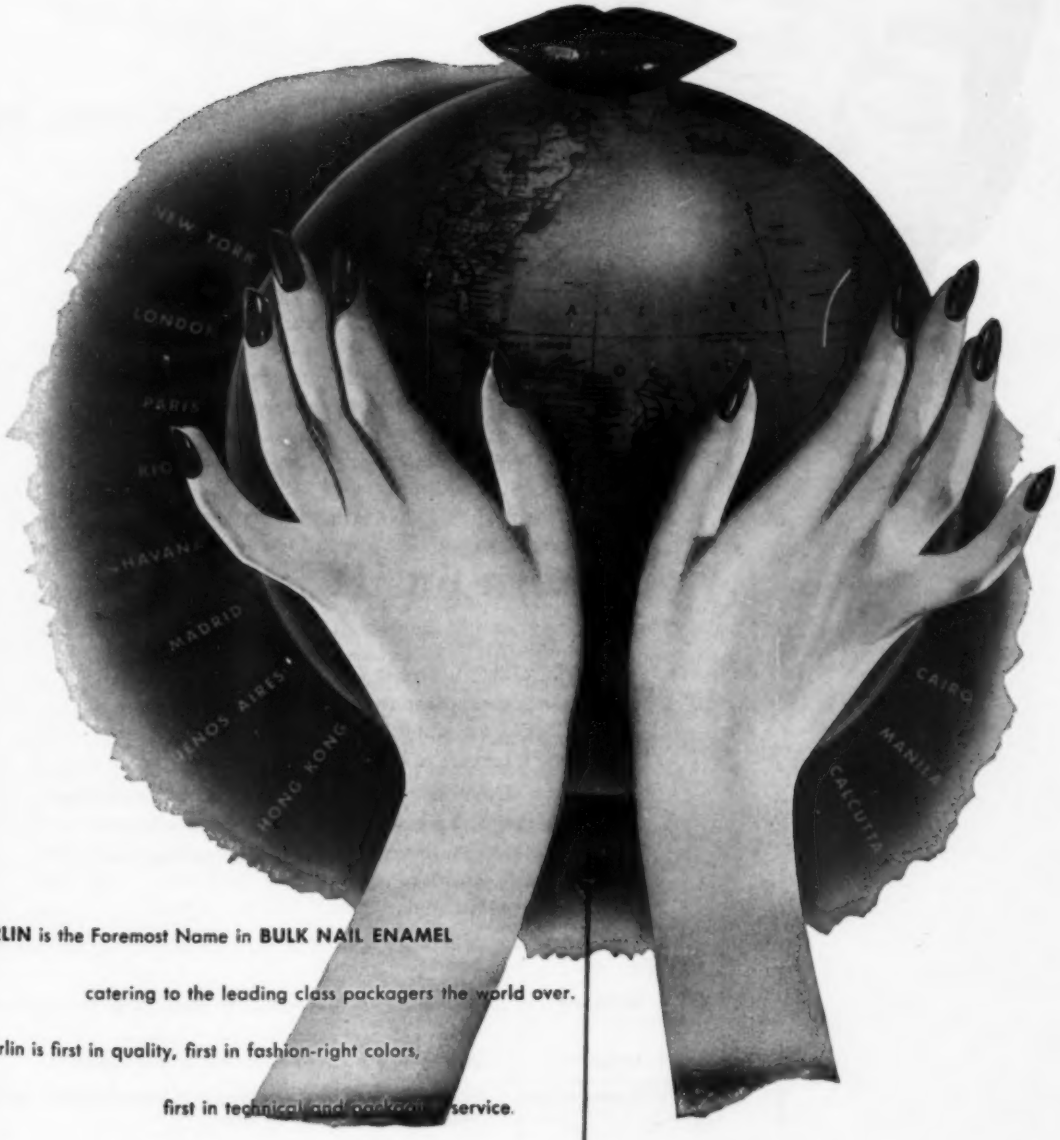

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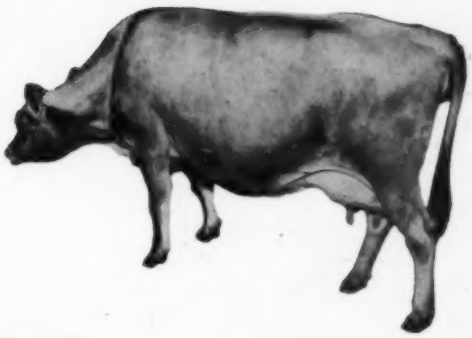

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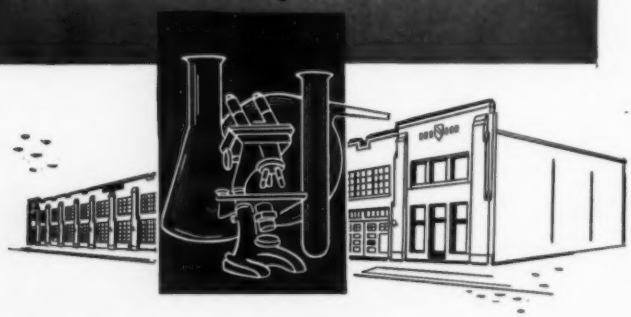

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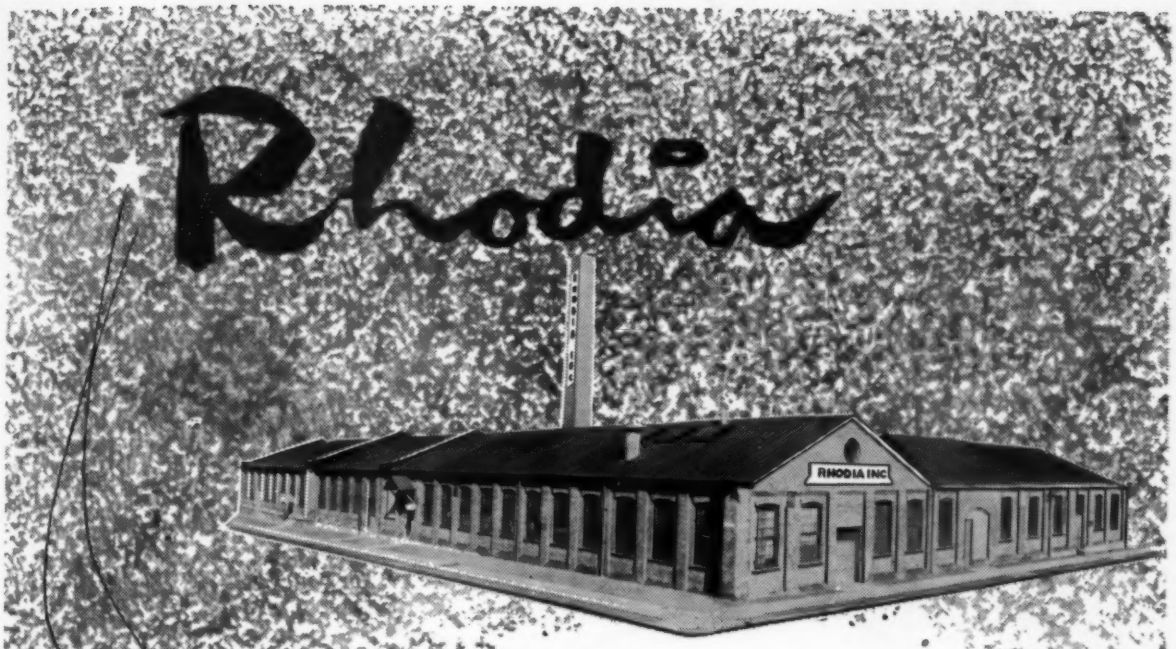

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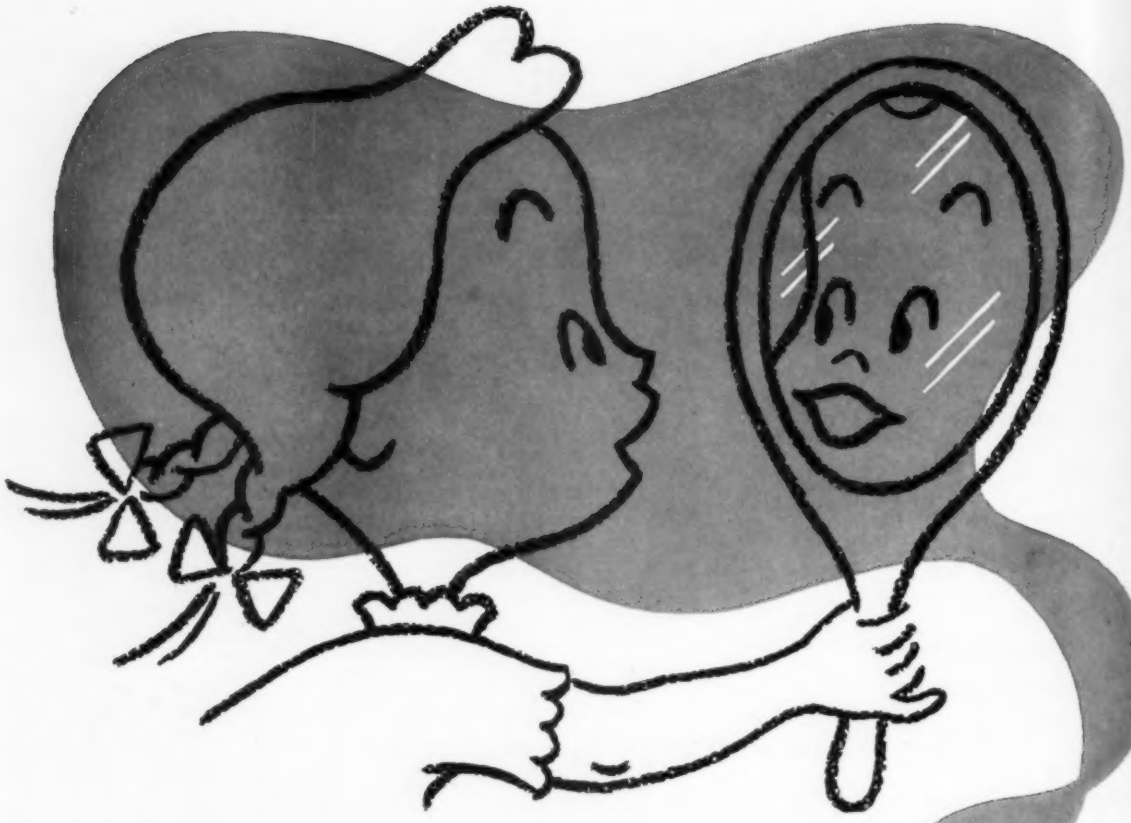

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Full-scale production of Sodium Lauryl Sulfate was started during February. It is now available in drum and tank-car quantities. Samples and complete technical data will be sent on request for both grades offered: TRITON AS-35 (paste) and low-salt TRITON AS-30 (liquid).

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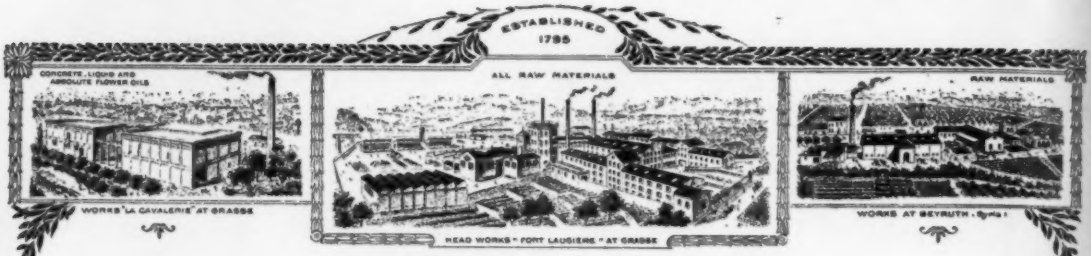
Active Ingredient	28-30%	28-30%
Free fatty alcohol	1.0-2.5%	1.0-3.0%
NaCl	0.5% max.	2.0% max.
Na_2SO_4	1.5 % max.	2.0% max.
pH at 5% active	7.0-8.5	7.0-8.5
Color, VCS	2 max.	2 max.
Iron, ppm	7.5 max.	7.5 max.



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U.S.I. CHEMICAL NEWS

March ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1954

Cover Story Features Allethrin Synthesis

The cover story of the March issue of *Industrial and Engineering Chemistry* gives interesting details on an important U.S.I. accomplishment: the construction and operation of the nation's first full-scale plant for the synthesis of Allethrin, a highly effective insecticide. Photographs and two flow sheets describe the plant's 18-step process, and the present and future uses of Allethrin are discussed. The article, "Staff-Industry Collaborative Report: Allethrin," was jointly prepared by the U.S.I. technical staff and *I&EC*. Be sure not to miss it.

Bone Fractures Require More Methionine to Heal

Experiments using methionine tagged with radioactive sulfur indicated that methionine metabolism increases during healing of bone fractures. The experiments were conducted on mice *in vitro* and *in vivo*.

Compared with controls, the methionine metabolism increased 3-5 times in bone fracture areas.

This work adds to the many examples of the increased need for methionine in healing processes where tissue is damaged, such as wounds and burns, as well as bone fractures.

Use of CIPC Brings Weed Control Savings

In a recent article on the use of CIPC to control weeds in cotton, savings which more than pay for the cost of the chemical are reported. Chemical weed control is said to be the missing link in the complete mechanization of cotton production, with CIPC described as the chemical which is taking much of the hand labor out of this phase of cotton growing.

Among the important conclusions reached from work with CIPC are: weeds can be controlled in cotton more cheaply with CIPC than by other means; cotton that is kept free of weeds throughout the growing season will yield more, since there will be less competition from grass and weeds; the problem of recruiting and managing day labor has become a big headache, and most growers would like to see this eliminated; and through the use of CIPC, it is possible to get a better job of weed control with less injury to cotton than any other known method.

CIPC has many other promising uses for the control of weeds. It is being successfully used with soybeans, sugar beets, certain legumes, vegetable crops, strawberries and other crops.

U.S.I. produces both CIPC and IPC for formulators, who prepare ready-to-use herbicides for the farmer. Technical data on CIPC and IPC are available upon request.

New U.S.I. Alkyd Promises Longer Life, Better Appearance For Exterior House Paints

Should Save Many Dollars for American Homeowners

A new U.S.I. alkyd resin promises longer-lasting and better-looking outside house paints. Called Aroplaz 1400, it is the result of more than 7 years of research and practical testing. Paints containing this new resin should bring greater economy in home maintenance, since the major cost of painting a house is labor, not paint. From all indications, homes painted with Aroplaz 1400 paints will maintain a better looking appearance for a longer period of time. This should save money for the user by requiring less frequent repainting.

The longer life of house paints made with new Aroplaz 1400 promises less frequent repainting and money saved for the user.

Described as a pure, low viscosity alkyd, Aroplaz 1400 can be used in white or tinted paints in place of all or part of the oil (linseed, for example) used in ordinary house paints. Alkyd resins are widely recognized for their excellent durability by the paint and varnish industry, and now with Aroplaz 1400, the paint manufacturer may successfully incorporate this valuable alkyd resin property in his house paint formulations.

Created by Researchers

Aroplaz 1400 is the product of imaginative research work by U.S.I. As a basic producer of raw materials for the paint industry, U.S.I. continually searches for better products and improved processes. Many of these, such as Aroplaz 1400, offer paint manufacturers an opportunity to improve their products.

The new alkyd resin was created by starting with a series of fast drying, low viscosity alkyds which researchers thought potentially outstanding for use in house paints. One of these alkyds gave superior results in every way with the exception of brushing, which was rated as fair to good. Based on this background, an alkyd resin was developed possessing

MORE

New Process Offers Organic Peroxide Source

A new process using gum turpentine for the production of pinane hydroperoxide has been developed. Described as simple, rapid and economical, it offers a potential source of organic peroxides especially suitable for polymerization catalysts in the production of synthetic rubber, resins and plastics.

The process is said to have four main steps: hydrogenation of the turpentine to give pinane; purification of the pinane, usually by simple distillation; oxidation of the pinane to a peroxide content of about 50 percent; and stripping the oxidate under vacuum to recover the unoxidized pinane, leaving pinane hydroperoxide as a residue.

According to one of the men who developed the process, 8-pound batches of turpentine yield about 4-pounds of 80 to 90 percent pure peroxides. In earlier development work, chemists prepared a pure form of pinane hydroperoxide and established its chemical structure as cis-l-pinane 2-hydroperoxide.

Treated Paper Protects Food From Boring Insects

Food packaged in paper that had been treated with insecticide formulations containing pyrethrins and piperonyl butoxide (Pyrenone®) was successfully protected from boring insects in recent laboratory tests. According to the report, the treated paper gave protection for periods of time ranging from 2 months to more than a year, depending on the dosage and type of formulation.

The problem of protecting foods packaged in paper bags and packages from insects is important in the food industry. The new method of packaging in treated paper promises to be of considerable economic value to food packagers. Paper treated with the most effective formulation repelled boring insects for more than a year, while untreated papers were penetrated in about 1 week.

The report, which appeared in a leading food chemistry magazine, was prepared by the Research and Development Laboratories of U.S.I. Combinations of pyrethrins and piperonyl butoxide can be used on food containers with no toxic hazards and are marketed by U.S.I. under the registered trademark Pyrenone.

March ★ **U.S.I. CHEMICAL NEWS** ★ 1954

CONTINUED

New Alkyd for House Paints

all the desirable properties in addition to excellent brushing characteristics. The result was Aroplaz 1400.

Tests Show Superiority

Exposure tests show the advantages of alkyd exterior house paints over straight house paints. Cleaner, whiter surfaces are observed after exposure. Furthermore, the alkyd-base coatings are better than straight-oil paints in over-all durability. U.S.I. tests continue to add evidence that extremely high quality house paints can be produced by the use of Aroplaz 1400. Important advantages, such as improved gloss-retention, cleanliness and general appearance are apparent throughout the life of the paint. Moisture-blistering, one of the greatest causes of house paint failure, is more effectively resisted, and Aroplaz 1400 paints are superior to conventional oil house paints in freedom from metal-staining. Tests also have indicated that Aroplaz 1400 paints give equal ease of brushing.

Future uses for Aroplaz 1400 should include bulletin colors, trim paints, emulsion and awning paints in addition to house paints.

Aroplaz 1400, experimentally known as resin DX-159, is now in commercial production and is supplied at 100% solids content. Much data has been collected over the years in the testing of alkyd house paints. Detailed information, including suggested formulations, is now available to paint manufacturers who wish to make independent investigations.

For further information, paint manufacturers should write directly to the Editor of the U.S.I. Chemical News.

New Flowmeter Saves Time

Claimed to be the first of its kind ever produced, a gyroscopic mass flow meter measures the flow of gases, liquids or slurries. The new meter reads directly in pounds per minute or tons per hour and is expected to save time for process engineers who labor long hours converting volumetric measurements.

New Paper Gives Copies Without Carbon Paper

Paper which gives copies of business forms or letters without the use of carbon paper has been introduced. The new paper utilizes the reaction of a colorless chemical coating with a clay-like material and is expected to receive widespread use in the business world.

Advantages of the new carbonless system are said to include the elimination of smudging, speeded efficiency in handling forms, and an end to the dirt and bother of duplication with carbon paper inserts.

According to the manufacturer, two different coatings on ordinary paper are used in combination to give the desired number of copies. If, for example, an original and two copies are wanted, the underside of the first sheet is coated with the colorless chemical and the topside of the second sheet with the clay-like coating. The impact of the typewriter character or the pressure of a pencil on the first sheet drives the colorless chemical coating into contact with the clay-like coating on the topside of the second sheet. This causes an immediate chemical reaction which turns the clay-like material blue and leaves a clean, sharp impression on the second sheet. This process is repeated with the second and third sheets, the back of the second sheet also being coated with the colorless chemical. Reportedly, up to seven copies can be made on an electric typewriter.

New Mold Release Agent Has Variety of Uses

Developed in conjunction with resin manufacturers, a new mold release or parting agent offers a variety of uses to plastic fabricators. It is described as providing a ready release from molds of polyester resins and as being useful in both large and small fabrications. The material is said to find extensive use in cold molding and is supplied as a paste in two consistencies to accommodate varying conditions and types of molds.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

An improved laboratory washer, said to handle everything from over-size graduates to micro pipettes, is available. The manufacturer claims that a new series of glassware baskets extend the washer's versatility. **(No. 1020)**

An appetite stimulant and nutritional supplement useful in aiding appetite failures from old age or convalescence has been announced. It is said to provide balanced amounts of nutritional elements including B-complex factors and iron. **(No. 1021)**

A starting fluid especially suited to diesels is designed to eliminate the need for storing equipment in heated quarters to insure easy starting. Applied to the air stream of any diesel or gasoline engine, it reportedly offers sure-fire starts. **(No. 1022)**

A tough silicone rubber with a tear strength 2 to 3 times higher than any other silicone rubber is now in production. It is expected to find widespread use as a gasketing material in chemical processing equipment, where high temperature, pressure or vacuum exist. **(No. 1023)**

A new moisture determination instrument, reported to be the first advance in over twenty-five years using the xylol or toluol distillation technique, may save enough time to pay for itself in a few months. It is described as portable and as a complete unit within itself. **(No. 1024)**

Cement colors which are fast to alkali are available. According to the manufacturer, they can be mixed or trowled into the cement. **(No. 1025)**

A chemically inert, pipe-thread sealing compound prevents spiral wicking, leakage and contamination. It is said to give a leakproof seal against fluids and gases under pressure and to be suitable for process pipe lines and apparatus. **(No. 1026)**

A material which loosens metal parts stuck together, such as frozen bolts, is available in an aerosol container. It is reported to penetrate into spaces as small as one millionth of an inch, soften rust and dissolve dried oil and grease. **(No. 1027)**

Aimed at keeping drivers awake, a coffee-flavored caffeine pill in a malted milk base is said to be neither habit-forming nor a depressant. **(No. 1028)**

Cold metalizing of surfaces with aluminum is possible with a mixture of finely pulverized aluminum in a plastic base. According to the manufacturer, the mixture hardens to a plastic bonded aluminum surface which can be polished, ground, drilled or bent to a 45-degree angle without chipping or cracking. **(No. 1029)**

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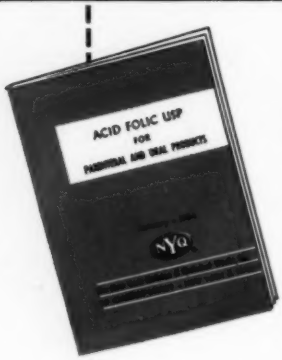

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- shampoos
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- wax polishes
- cleansing creams
- hand creams
- brushless shaving soaps
- dry cleaning soaps
- surface active agents

Jefferson Monoethanolamine, Diethanolamine, and Triethanolamine are available now, for prompt shipment, in tank cars, tank wagons and 55-gallon drums—or in samples for preliminary investigations.

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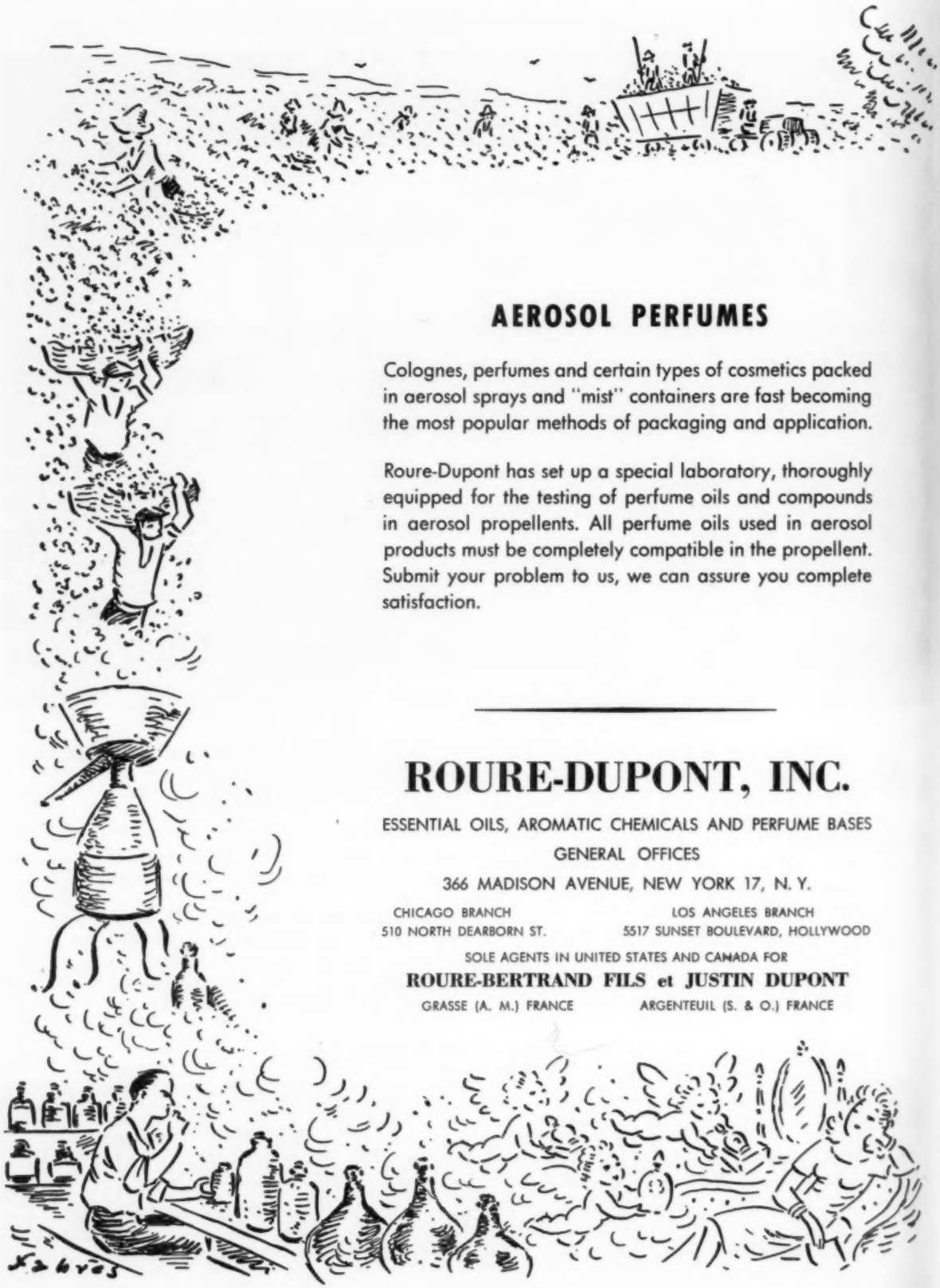
Ethylene Dichloride
Diethylene Glycol
Monoethanolamine
Diethanolamine
Triethanolamine
Nonyl Phenol
Morpholine
Ethylene Carbonate
Propylene Carbonate
Polyethylene Glycols
Glycol Ethers



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Roure-Dupont has set up a special laboratory, thoroughly equipped for the testing of perfume oils and compounds in aerosol propellents. All perfume oils used in aerosol products must be completely compatible in the propellent. Submit your problem to us, we can assure you complete satisfaction.

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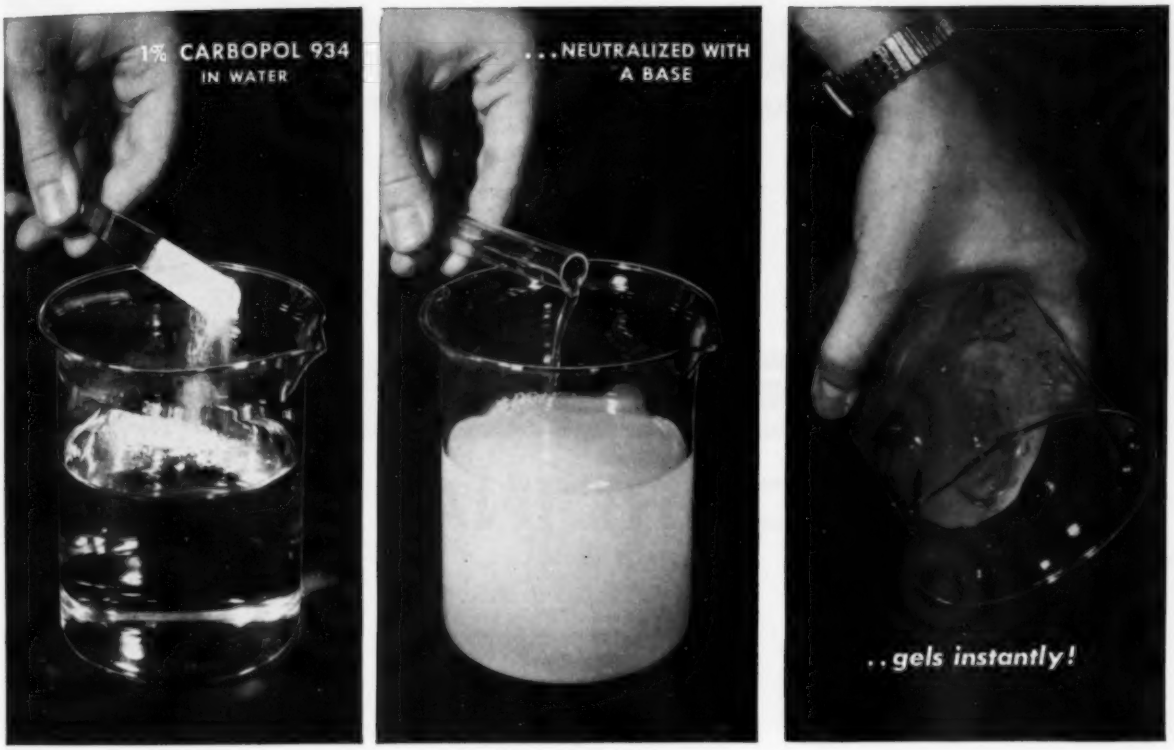

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1% of new synthetic gum gels water

THIS unique hydrophilic colloid offers many advantages to manufacturers of cosmetics, textiles, pharmaceuticals, paints, agricultural chemicals and latices.

It is exceptional in performance and versatility as a:

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Carbopol 934 is a free-flowing white powder which easily disperses in water to form a low viscosity, low pH solution. Neutralization results in a clear stable gel.

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For technical information and experimental samples, please write Dept. OB-2, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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For the many popular colognes the American woman has a strong preference. Both the classic and modern types of fragrance are well received and more lavish use is made of this than possibly any other class of perfume item. Of more recent origin, the cologne stick has also been widely accepted. For the enterprizing manufacturer who desires to market a fragrance duo, a liquid and stick cologne, scented and colored to match, will be developed by the D&O Perfume Laboratories to suit individual company requirements. Let the D&O representative in your vicinity give you specific details on the preparation of these attention-getting cologne coordinates.

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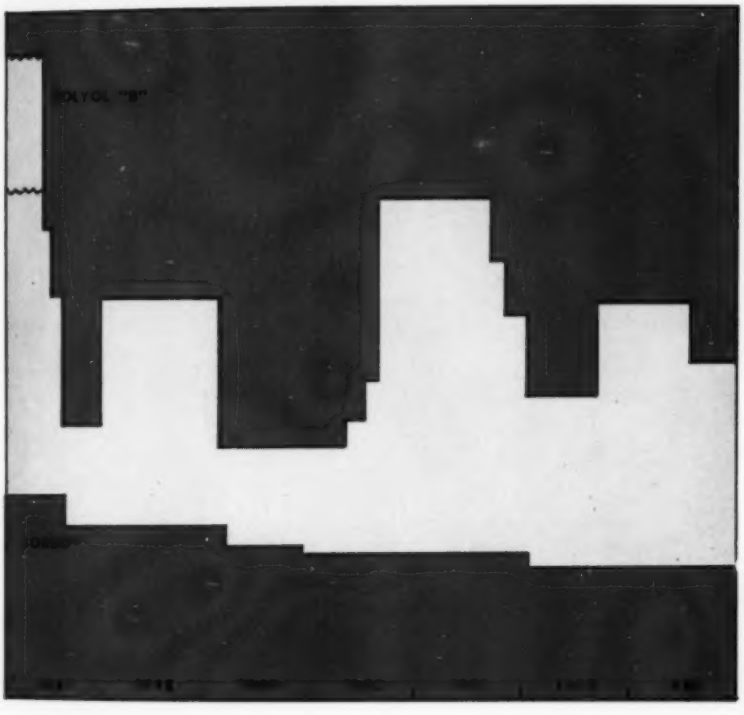

Sorbitol offers substantial savings as ingredient for drugs and cosmetics

In the numerous drug and cosmetic preparations which require a softener, humectant, plasticizer, or bodying vehicle, sizable cost reductions are possible through the use of sorbitol. Sorbitol fulfills all these functions at savings which can amount to as much as 50% on ingredient costs.

Equally important is the stability of sorbitol's price. The chart shows the price history of Sorbo® sorbitol solution over the past seven years. While other polyols have fluctuated in price under the stress of periodic shortages, sorbitol has steadily dropped in cost.

Sorbitol is made from plentiful refined natural sugars—principally corn sugar. Production facilities have grown rapidly . . . and can be expanded further in a short time to meet demand. Because sorbitol is made for its own sake, it is free from the usual supply limitations of a by-product material.

On the basis of economy alone, sorbitol is well worth investigating. For a brief digest of facts on how sorbitol can help you make better products at lower price, write for a copy of the booklet, "The Sorbitol Story."

Publication describes use of Atlas products in drug and cosmetic formulas

The booklet "A Guide to Cosmetic and Pharmaceutical Formulations" published by Atlas contains extensive data on the use of sorbitol and Atlas surfactants in the preparation of drug and cosmetic products.

Its 92 illustrated pages include 86 different formulas for preparations of many types, technical information on Atlas products, and a bibliography of applicable literature.

A copy will be sent to executives, research directors and purchasing agents of cosmetic and pharmaceutical firms who request it in writing on their company letterhead.

Atlas emulsifiers add washability to melt-type ointments

Melt-type ointments, consisting primarily of oils, fats, and waxes, often present problems due to poor washability. By incorporating Span® or Tween® emulsifiers into the preparation, washing qualities are improved, and it is more readily removed from the skin or clothing. The surface active ingredients aid emulsification with water.

Atlas specialists will be glad to give recommendations on emulsifiers to use with your specific ointment formula.

These flint glass bottles are from our C-39 line . . . one of our most versatile and attractive styles. Available in either clear glass or frosted and can be supplied plain or with your own fired-on ceramic label. Made in 14 sizes from 1/2 dram to 16 ounce capacity.

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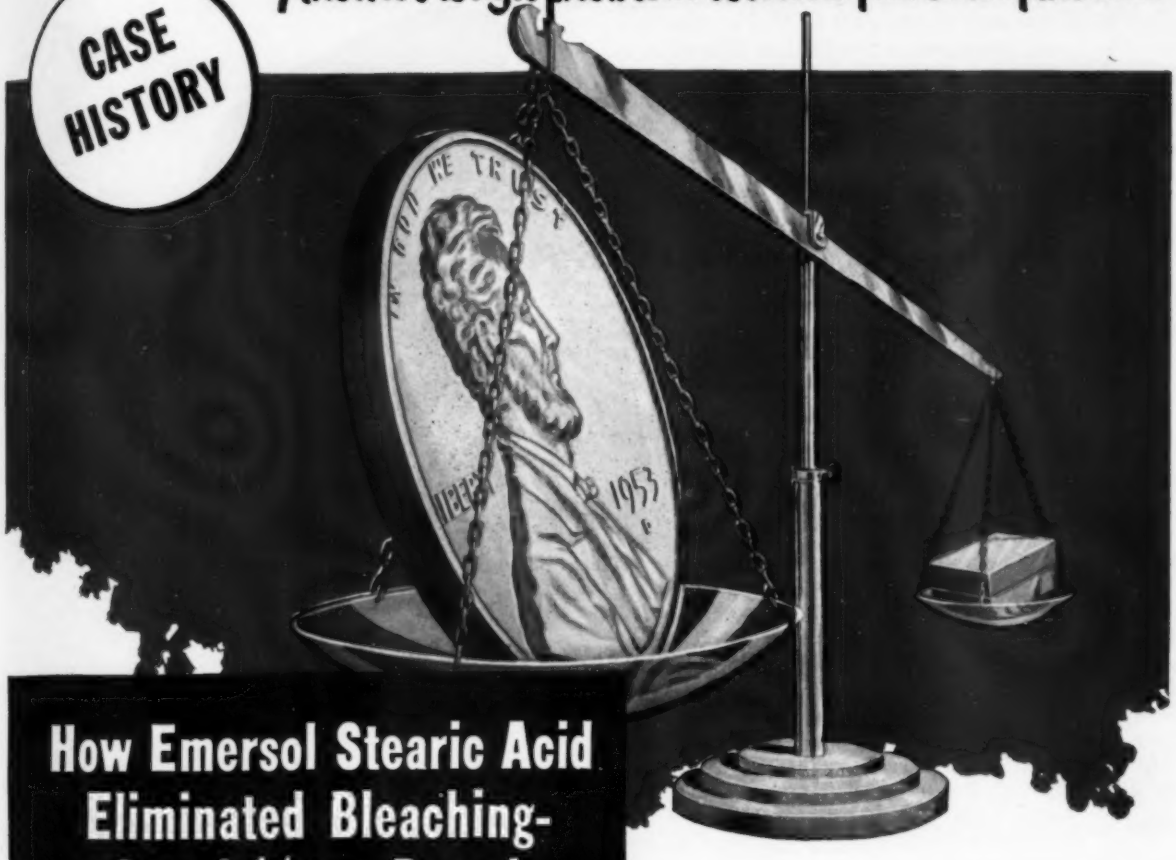
CASE HISTORY

Another tough problem solved by an Emery Product



How Emersol Stearic Acid Eliminated Bleaching-Saved ½¢ a Pound

By using Emersol 132 Lily Stearic Acid in place of an ordinary triple-pressed type, this manufacturer of *esters* was able to attain the desired color of his product *without bleaching* and without spending extra money, because Emersol Stearic Acids cost no more than ordinary grades.

In this actual case, the exceptional *color-stability* of Emersol 132 resisted the darkening that normally occurred during high-temperature esterification. Not only was the cost of bleaching eliminated (labor and materials), but the yield of finished product increased by the amount normally trapped in the discarded filter cake.

The outstanding stability of Emersol Stearic Acids can mean as much to you. Even where color is not of primary importance, their superior resistance to rancidity and to oxidation are extra benefits that make any product *more salable*. Since they cost no more than ordinary grades, it will *pay you* to use Emersol Stearic Acids—available in all grades to suit your specific need. Next time...everytime...buy Emersol Stearic Acids.

IF YOU USE A DOUBLE PRESSED GRADE...

Here's one of many reasons why Emersol 120 Standard Stearic Acid is preferred over competitive double-pressed grades. These colors of *glyceryl monostearates* clearly show the value of the outstanding *color stability* of Emersol 120. The monostearates were esterified for 5 hours at 250° C, under a CO_2 blanket, with no bleaching or refining.

Glyceryl Monostearate made from	*Lovibond Color (5¼" Cell)*
Emersol 120 Standard Stearic	6Y/2.7R
Competitive Double Pressed "A"	9Y/4R
Competitive Double Pressed "B"	28Y/8.5R

Write Dept. D-11, for full information on all Emersol Stearic Acids.

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Nobody knows...

...as well as the pharmaceutical manufacturer how many complications can arise in making simple tablets on a production basis. It requires skill, equipment—and perhaps most of all, properly prepared starting materials. Mallinckrodt, after eighty-six years of growing with the nation's pharmaceutical manufacturers, has developed skills of its own in producing starting materials and intermediates that help pharmaceutical manufacturers reduce their problems. Refinements are continually being made to help the pharmaceutical manufacturer do his job easier and better—not only in dependably pure chemicals but in dependable forms and grades as well. Mallinckrodt may have much to offer you. Write us if your production problem involves purity or physical form.

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when using fine chemicals... to be sure ✓ *check the source*

"I'll tell YOU what DG-26 is, but the public's not supposed to know."

A.D.A. Again Attacks Dentifrices

The American Dental Association continued its attack on anti-enzyme tooth pastes last month. In a report in the A.D.A. Journal Drs. Walter C. Hess and Bernard K. Forscher, of the School of Dentistry, Georgetown University, reported that a test of sodium N-lauroyl sarcosinate had shown that there "is a clear indication that the agent has failed to fulfill the claims made for it." At the same time the Journal declared editorially that "the anticariogenic (tooth decay prevention) miracle promised for the anti-enzyme dentifrices may well turn out to be not a miracle but a mirage." The editorial singled out advertising which promises "lifetime protection against tooth decay" as one of the most blatant examples of "miracle claims." As yet there is no satisfactory evidence that any dentifrices decrease the dental decay rate because of any special substance incorporated in them, the Journal said.

In the new study, the dental scientists used a tooth paste containing two per cent sodium N-lauroyl sarcosinate, a substance which it has been claimed would halt the formation of acid on the teeth for long periods of time. Acid formed on the teeth causes tooth decay.

The dental scientists said their test gave no indication that acid formation would be prevented by the preparation.

"The fact that the presence of acid can be demonstrated on tooth surfaces in those subjects using the test agent is a clear indication that the agent has failed to fulfill the claims made for it," the investigators said.

To measure the carry-over protection claimed for the substance, Drs. Hess and Forscher included in their study one group of 66 persons who used a tooth paste containing the special substance twice a day for seven days while a second group of 61 used a dentifrice with the same special substance twice a day for four months. A third control group of 130 persons used an ordinary tooth paste.

In the morning immediately following the test periods, a small sample of the film or dental plaque adhering to the teeth was removed from each individual in the three groups. Then each person rinsed his mouth for 30 seconds with a sugar solution after which additional samples of the plaque were removed every five minutes for 20 minutes.

In an additional experiment, all the individuals brushed their teeth twice a day for seven days. Then on the eighth day they brushed their teeth in the morning and after lunch and were subjected to the same test procedure three hours later.

In both experiments, the scientists, measuring the acidity of the plaque samples, found no difference in acid formation in persons who used either the anti-enzyme dentifrice or the ordinary tooth paste.

"It was found that a dentifrice containing two per cent sodium N-lauroyl sarcosinate did not prevent acid formation in the dental plaque," they said.

Mental Disease Most Important

The greatest challenge facing medical science today is not cancer, heart disease or polio but the "vast and unexplored field of mental health," according to Dr. Maurice L. Tainter, director of Sterling-Winthrop Research Institute. Stating that brilliant accomplishments "mark our times as the golden age of medicine" during which man's life span has been lengthened from 45 years in 1900 to 68 in 1950, and pointing to the possibility that the average person will live to 100 years by the year 2,000, Dr. Tainter said:

"However, the major challenge confronting science today is not to keep people alive, but to keep them alive and in good mental health."

Unfortunately, he continued, the field of neuro-psychiatric disorders is "tragically underdeveloped" in proportion to its long-range importance. Nervous and mental disorders have created the "staggering" problem of trying to cope "blindly" with a situation in which more than half of all the beds in U.S. hospitals today are occupied by this type of patient.

Impressive progress has been made in neuro-psychiatry, considering that this phase of science was largely empirical until the latter part of the nineteenth century.

It remains relatively unexplored, Dr. Tainter said, due to lack of experimental techniques with which "to probe into the complex mechanism of mental disorders."

Vitamin-Mineral Claims Stopped

The Federal Trade Commission has approved an examiner's initial decision prohibiting certain advertising claims of a vitamin-mineral preparation called V-T. The order was issued against I. Z. Harris and Pauline D. Harris, copartners trading as the Veltex Company, Birmingham, Ala.

Prohibited are unqualified claims that V-T is of therapeutic value in the treatment of aches, pains, weakness, tiredness, loss of pep, nervousness, sleeplessness, nausea, headache, and gas pains. Such claims must be accompanied by a conspicuous disclosure that the product is of value for these symptoms or conditions only when they are caused by deficiencies of vitamins B_1, B_2, niacinamide, or iron.

Also prohibited are representations that the product gives fast relief from any of these symptoms or conditions; that it is an adequate vitamin or mineral supplement or provides all the essential vitamins or minerals; or that the yeast or liver extract content of the product is sufficient to be of substantial therapeutic value. Claims that the formation of red blood or red blood cells will be stimulated by the product must be expressly limited to cases where a deficiency of such blood or blood cells has resulted solely from iron deficiency anemia.

Variety Package Awards

Twenty variety store packages were awarded gold and silver awards symbolic of outstanding packaging achievement in the 18th National Variety Packaging Competition held last month. In the classification, Cosmetics and Toilet Goods, Johnson & Johnson won the Gold Award for their Cut-Quick Roll package Red Cross Adhesive Tape. Silver Awards were made to the Mennen Company for the Mennen Baby Powder Package designed by Francis Bold of Design Associates Ltd., New York; and to Pond's Extract Company, for Angel Face Powder package designed by Joseph B. Platt, New York.

Aerosols in the Mails

The United States Post Office Department has issued approval for the mailing of pressurized products previously refused the use of the mails. Naturally regulations concerning the mailing of such products have been published and these must be strictly observed. The Chemical Specialties Manufacturers Association, which has been active in obtaining this approval, cautions shippers to be certain that all valves are protected; strong, well constructed outside containers be used; suitable absorbent material be included as required or indicated by good judgment; packages be labeled completely; and that all aerosol packages be able to pass the water bath testing at 130° F. The association states that great stress was placed by the Post Office Department on the water bath test which may be a subject for inspection.

A.P.M.A. Research Award

The Office of Vocational Rehabilitation of the U. S. Department of Health, Education and Welfare has been selected to receive the American Pharmaceutical Manufacturers' Association Research Award for 1954. Presentation will be made at the association's annual meeting in Boca Raton, March 30. The Director of the Office is Miss Mary E. Switzer who will receive the Award on behalf of the Office of Vocational Rehabilitation.

The Office of Vocational Rehabilitation is described as the nerve center of a nation-wide network that has enabled more than half a million handicapped persons to take useful places in the nation's economic activity and earn their way by engaging in profitable work. In an economic sense the results of the work done by the Office can be measured in man hours of work and dollars of income. For example, the 61,000 persons rehabilitated during the fiscal year 1953 had aggregate earnings of $112 million. The humanitarian considerations involved in this program are beyond measurement.

Vitamin B_{12} Approved

Now that the Food and Drug Administration has recognized the necessity of vitamin B_{12} in human nutrition, marketing of this important product is being stepped up. Thus, shortly after the announcement by the FDA of this recognition, it was announced by major sellers of this product in bulk that because of greater economies realized through increased production, the price was being reduced $50 per gram. This brought the price down to $245 per gram.

H.I.F. Tells Congress

The Health Information Foundation put in an appearance by invitation before the Wolverton Committee of the House of Representatives. This committee, headed by Representative Charles A. Wolverton (Rep., N. J.) will consider any health legislation proposed in the House. Kenneth Williamson, of HIF, told the committee that the nation spent $10.2 billion for medical and dental services during the year ended last June 30. Of this amount he said only 15 per cent was covered by insurance.

Of this $10.2, $2 billion went to hospitals which was 50 per cent covered by insurance; $3.8 billion went to physicians which was 13 per cent covered by insurance; $1.6 billion went to dentists less than one per cent of which was covered by insurance; $1.5 billion went for medicines less than one per cent of which was covered by insurance; $1.3 billion went for opticians, private nurses, chiropractors, laboratory tests, and the like, less than one per cent of which was covered by insurance.

As to medical hardships, Mr. Williamson said that 6 million families had medical expenses totaling 10 to 19 per cent of their income; 3 million families had expenses running from 20 to 99 per cent of their income; 500,000 families had medical bills which equaled or exceeded their income; 8 million families had medical debts totaling $1.1 billion.

Hair Claims to Be Stopped

Claims that Alton's Formula for Hair and Scalp prevents baldness or stops falling hair will be discontinued by Alton Products Company, Yonkers, N. Y., in accordance with a stipulation approved by the Federal Trade Commission. Other claims to be stopped are that the product cures dandruff or seborrhea; that it contains special proteins which are effective in the treatment of falling hair, dandruff or itching scalp; or that the product makes the hair look thicker.

Nebraska Fair Trade Upset

Fair Trade ran into a snag late last month when Nebraska's Fair Trade Act was declared unconstitutional by District Judges Chase and Patton of Omaha. The ruling is subject to review by the Nebraska Supreme Court. The Nebraska law, which dates back to 1937, was held unconstitutional as an "improper and unauthorized exercise of police power," as an unconstitutional delegation of legislative authority into private hands by permitting one producer and one retailer to bind together all retailers, and because the title of the law did not clearly reveal its substance.

Clinical Nutrition and Disease

Clinical nutrition in the control of disease was discussed by Dr. Robert A. Peterman, medical director of J. B. Roerig & Co., before the Western Section of the American Pharmaceutical Manufacturers Association. Dr. Peterman said that in his own experience in a New York nutrition clinic, requests for nutritional evaluation of patients from such specialties as opthalmology, neurology, surgery, orthopedics and dermatology are becoming routine. In a surprising number of experiences, he said, nutritional therapy alone was sufficient to eliminate eye disorders, clear up chronic skin conditions, and even make planned-on surgery unnecessary. On the breakdown of 1,000 cases met with in his own practice, excluding infants and school-age children, Dr. Peterman offered the opinion that nearly 50 per cent of patients are afflicted with aches and pains and discomfort not subject to exact diagnosis with present methods. These patients, he said, are nonetheless "manifesting very real disorders . . . metabolic disorders which very likely are forerunners or represent the early manifestations of degenerative diseases." Moreover, he said, fewer than 10 per cent of them ate a diet that would satisfy the accepted minimal standard. Minimal dietary requirements, he continued, are perhaps even less likely to be met with in states of illness than in so-called health.

"Just visit any hospital at mealtime and watch the trays being removed after the meals. . . . Think of what the lack of those materials is causing in terms of delayed wound healing, inadequate antibody response, and probably in terms of additional stay in the hospital, but chiefly in terms of the unnecessary prolonged discomfort and malaise or suffering on the part of the patient."

Even a filet mignon, he suggested, has little attraction for a sick person. Instead, he said, "Relatively inexpensive concentrated forms are far more complete and better balanced and more likely to be taken by the patient than regular food no matter how attractively presented."

The daily requirements of the body, he explained, consist of a very few ounces of chemicals. These are "about four heaping tablespoons of glucose, an ounce or so of assorted amino acids, a 'pinch' or so of specific vitamins, a few grams of established essential minerals, and virtually invisible quantities of trace elements."

The new concept of metabolic medicine, Dr. Peterman emphasized means that "there exists a tremendous opportunity to provide for the practicing physician a number of carefully designed nutritional products to be taken daily by the patient . . . new products with each individual ingredient being completely justified by valid evidence of its need or usefulness."

Keeping Products Fresh

Dr. Rudolph H. Blythe, director of pharmaceutical chemistry for Smith, Kline & French Laboratories, reported to the Eastern Section of the American Pharmaceutical Manufacturers Association on the industry's efforts to keep its products fresh and potent on the druggist's shelves and in the patient's medicine cabinet. Despite the tremendous advances in the discovery and development of new medicines, "an equal or even greater amount of energy is being expended in research to be sure of producing the most effective and acceptable forms of these new agents," he said. "An important part of this," he pointed out, "is the study of the product's behavior on the market, so that the industrial research pharmacist can develop formulations that will maintain the same potency and elegance until the consumer can use the product."

While the Food and Drug Administration is the official "watchdog," which keeps its eye on products to make sure they contain the full potency stated on the label, Dr. Blythe showed that the industry itself is making a good effort to police its own products.

A survey, which brought 40 replies which included most major manufacturers, and many smaller ones, showed that 46 per cent consider two years to be the normal shelf life of their average product. Thirty per cent said three years, and 11 per cent went so far as to consider five years the normal shelf life.

In testing the products under normal conditions, half of the companies follow them for at least a year, at room temperature; 40 per cent up to two years; and 33 per cent at least up to three years.

To predict long-term stability in a short period, research pharmacists use exaggerated conditions of storage, principally temperature, humidity, and light. These tests are carried out on products up to three months by 57 per cent; six months by 42 per cent, and a year by 20 per cent. The nature of the product dictates the type and degree of testing. The survey showed that liquids are subjected to a wide range of temperature tests. Ointment testing avoids the extreme high temperatures, because there is no way to maintain stability when the melting point of the product is exceeded; on the other hand, ointments are tested at the freezing point, for there are ways of maintaining stability at this level. Tablets are tested mostly in the higher tem-

peratures, because they are not injured by freezing but may crack or harden at higher temperatures. Humidity studies are applied mostly to tablets, which are subject to loss of their "finish" and general deterioration in overly humid circumstances. A variety of light studies are used—sunlight, ultra-violet, and special artificial lighting—and are applied mostly to liquids and to tablets with artificial coloring.

Medical Art Collection

A unique collection of medical art by such renowned masters as Rembrandt, Goya, Daumier, Vesalius, Toulouse-Lautrec and others is being shown at medical colleges and hospitals across the country by Smith, Kline & French Laboratories. The collection, entitled Ars Medica or The Healing Arts, is composed of 85 prints depicting the practice of medicine over the centuries and was assembled by the Philadelphia Museum of Art through the support of SHF. Some of the outstanding prints in this collection are Vesalius Ninth Plate of Muscles, Rembrandt's Portrait of Dr. Ephraim Bonus, Bellini's Visit to the Plague Patient, Eakin's original engraving of The Gross Clinic, Bosse's engraving of The Confinement, Winslow Homer's Civil War portrayal of the Surgeon at Work During an Engagement, Hogarth's The Company of Undertakers, Toulouse-Lautrec's lithograph of the sick French premier Carnot.

Prescription Products and Fair Trade

Prescription products are being brought under fair trade contracts. A steadily increasing number of pharmaceutical manufacturers are taking this step, and G. D. Searle & Co. have announced fair-trading at a 40 per cent profit level. A question might be raised regarding the legality of fair-trading such products when they are dispensed on prescriptions. Certainly prescriptions are not in competition with one another, and it might be considered that a pharmaceutical preparation loses its trade identity when it is dispensed in this manner. Once a pharmaceutical preparation is prescribed by a physician, it becomes a product of the physician since it is a specific thing which he has selected for use by a certain person. Also the physician has set the limits of its use by this particular person. Under the circumstances the product can only be identified by the prescription number and the name of the physician, and it hardly can be considered to be in competition with other prescriptions.

Synthetic Atropine

The first practical synthesis of atropine in the United States, freeing this country from dependence on foreign sources of this important drug in time of war, is reported by Winthrop-Stearns. In addition to its normal use in medicine, atropine has a most important use in national defense since it is recognized as an antidote to nerve gas, which causes paralysis and certain death unless quickly counteracted. It is estimated that one pound of atropine will provide sufficient doses to treat one million people.

The natural sources of the drug are the plants atropa belladonna, datura stramonium, and others belonging to the potato family, grown principally in such Iron Curtain countries as Czechoslovakia, Hungary, Bulgaria, Romania, and Yugoslavia. Other known sources are Australia and some Scandinavian countries.

A complete laboratory synthesis of atropine was achieved in the summer of 1951 by a team of chemists at the Sterling-Winthrop Research Institute. Work on the project was under the supervision of Drs. C. M. Suter and J. S. Buck of the Institute's Chemistry Section. Two years later a technique was developed to manufacture the drug in commercial quantities. Since that time, production of synthetic atropine at Winthrop's plant in Rensselaer, N. Y., has been devoted entirely to filling an order placed by the Department of Defense which is stockpiling the drug for emergency use.

Boric Acid Approved

The Food and Drug Administration has approved the use of boric acid in talcum powders containing up to five per cent boric acid. The FDA statement reads: "The Food and Drug Administration has investigated the use of talcum powders prepared with five per cent boric acid powder and finds there is no hazard in the use of these products. Borated talcum powders with five per cent boric acid have been in use for many years as dusting powders for babies. Clinical, animal, and chemical research investigations as well as consultation with leading medical authorities who have conducted research in the field of baby talcs confirm their safety." This is a partial answer to the vicious attacks which have been circulated concerning boric. It is generally believed that the FDA is conducting tests on other types of boric acid-containing preparations and that it will release opinions on these as the examinations are completed.

N. J. Proprietary Case Appealed

The New Jersey State Board of Pharmacy has filed an appeal in the declaratory judgments case which was decided in favor of the Proprietary Association. The Supreme Court of New Jersey, on its own motion, has taken over the appeal, thus skipping the Appellate Division of the Superior Court of the State. This means that when the decision by the Supreme Court of the State is rendered, that will be the end of the issues involved so far as the courts of the State of New Jersey are concerned.

Steroid Hormones

Dr. Victor G. Fourman, of Syntomatic Corporation, New York, under date of February 25, writes us as follows:

Because there is so much to read and it takes so much time to unearth the worth-while material from a mass of almost endless publications, I write to you at this late date about the article, Steroid Hormone Products,

by Mr. Norman Applezweig, which appeared in your issue of December 1953. The author of this paper, and Drug & Cosmetic Industry, should be congratulated for this authoritative and lucid treatment of the subject of hormones which is of interest to many of your readers in the drug and cosmetic fields. Mr. Applezweig has given us a survey of the chemistry, the history and the economic aspects of a highly complicated subject, and this paper is typical of the many excellent articles which are appearing in your publication. It shows how far we have traveled in the last decade.

May I point out one small error that has found its way into Mr. Applezweig's article. In the paragraph before the last, in discussing the story of Cortisone sales, it is stated "With the price declining to $11.00 a gram and then $7.60 per gram, the dollar volume diminished to $22,000,000 and then $18,240 respectively." The last figure should obviously read, $18,240,000.

The Coumarin Matter

S. L. Mayham, executive vice-president of the Toilet Goods Association, has written us a letter concerning the article by Frank Child on the coumarin situation which appeared in our February issue. This letter calls attention to basic factors in FDA enforcement of the Federal Food, Drug, and Cosmetic Act which is evidenced by the action on coumarin.

The letter reads:

"I want to compliment you on "The Story Behind Coumarin" which appears in the February issue of Drug & Cosmetic Industry. I have not seen a more correct and factual statement on the issues in this very complicated matter any place and I have felt that there was a tendency on the part of both the Food and Drug Administration and the chemical manufacturers involved to mislead the public as well as the consuming industries slightly as to the issues. Accordingly, I think your article is a very valuable contribution to the controversy, if indeed it can be said to be a controversy.

"What distresses me about the whole matter, and I am sure distresses others who have thought about it seriously, is the fact that the Division of Pharmacology of the Food and Drug Administration seems to be suffering from an obsession that they were ordained and constituted to protect the human race from everything which it might eat as a food, take as a medicine or rub on the hide as a cosmetic. The Food, Drug and Cosmetic law certainly did not contemplate any doctrine of absolute harmlessness, but those currently running the Division of Pharmacology have assumed apparently that the law did so. Even section 402 which is the point of issue in the coumarin matter did not contemplate that nothing would be added to a food except articles which were non-toxic in the absolute sense of the word. Any assumption that the reverse of this is true cannot be sustained and must fall of its own weight because, as all of us know, there is no such thing as an absolutely non-toxic or an absolutely harmless substance.

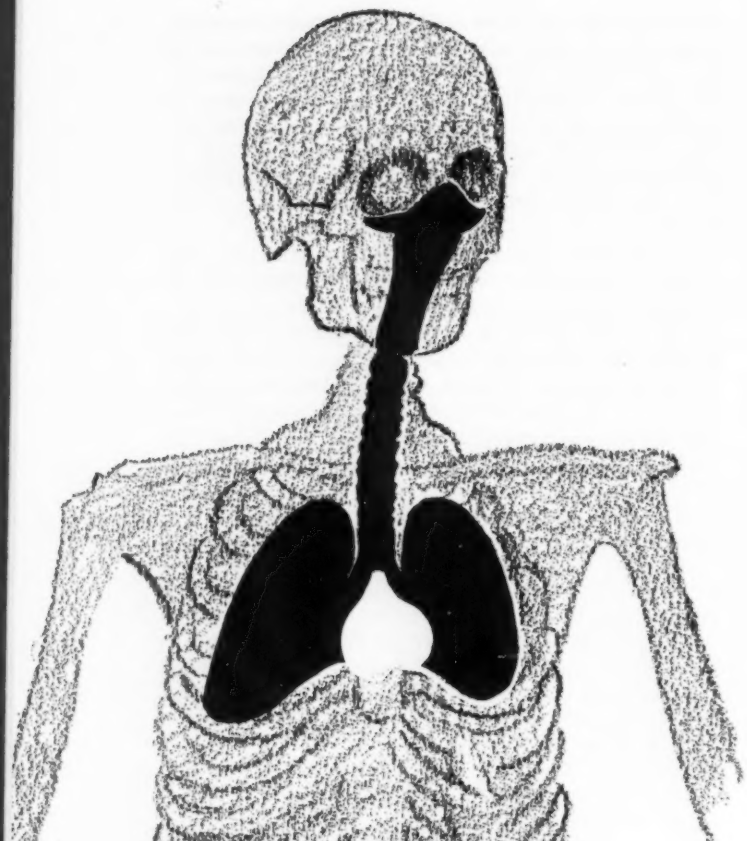
"In the past, the balance between the Division of Pharmacology in the Food and Drug Administration and the work of the Administration as a whole has always been correctly maintained and the Division of Pharmacology has never until quite recently been permitted to run away with the entire Administration to the point of making the Administration ridiculous in the eyes of sensible people. I for one deeply regret to see the reins of the Administration so loosely held with respect to the Division of Pharmacology that it is in effect interpreting the law for the entire Administration. That in my book is bad administration of a very fine law.

"It is especially bad since so much valuable time and energy of competent scientists in the Department of Pharmacology is now being taken up with a ridiculous search for the absolutely harmless material and with proving that a great many substances which are harmless in the dosages in which they are used are harmful if used in excessive dosages. Everyone knows that, and the time and energy of these scientists is too valuable to be wasted in a duplication of search for the obvious. At the same time, we find the Administration weeping bitterly on the shoulders of all of us that Congress, in its wisdom, or lack of it, saw fit to reduce its appropriation. I believe that the Toilet Goods Association was the only association affected by the law to make a direct plea to Congress to maintain and even increase the appropriation for the Food and Drug Administration last year. That shows that what I have said here does not mean that I disapprove of the search of the Administration for higher appropriations, however, it gives me cause to wonder whether the T.G.A. should again this year appear on behalf of the Administration's request for larger funds. I do not like to see funds which could be used for very worthwhile purposes dissipated on activities which are not valuable to the ultimate consumer and are a disservice to the industries whose activities are controlled by the law.

"If the Administration at this point is going to inquire into the toxicity of 50 or more chemicals and the entire list of certifiable coal-tar colors plus a great many other things not as yet admitted by those in charge of the Division of Pharmacology, I can see nothing but a continual running fight on the part of the affected industries against a series of proposed rulings and regulations, which, if put into effect, would help nobody and would hurt everybody.

" I do hope that those who control the activities of the Administration at this time will carefully read the article which appeared in your February issue and that they will then prayerfully consider whether there are not more important things than that 250 parts per million of coumarin never hurt even a poor misguided laboratory animal but that 2500 p.p.m. would make him awfully sick. We all knew that long ago. We also knew that there was no evidence and could never be any that any person who ate ice cream or candy or bread flavored with imitation vanilla had ever been hurt by the infinitesimal coumarin content in it. Just how silly can people get in their search for absolute harmlessness and absolute non-toxicity?

"I would not care if the silliness were confined to a private investigative laboratory but I do feel that the taxpayers' money is being beautifully mishandled by a continuation of these ultra-meticulous investigations by a government agency. Let's get on with the enforcement of the law and protect the public and let's stop a lot of this scientific nonsense."



Modern Inhalation Therapy

by Milton A. Lesser

The importance of inhalation therapy in modern medicine is well indicated by the increasing use of this method of treatment. Recent years have seen the development, not only of new and improved types of equipment for aerosol therapy, but also of superior preparations for administration by this method. The status of such treatment is also reflected in the recommendation[1] that medical schools should give instruction in inhalation therapy to their students and offer special courses for internes and practicing physicians.

Of course, inhalation therapy is not new, its use goes back at least as far as written medical history. Thus, the Bible records the use of burning incense to drive away evil spirits and it is known that the primitive American Indians used the fumes of herbs for similar reasons. As remarked by Abramson,[2] an authority in this field, steam inhalations and the inhalation of smoke from burning asthma powders are early and still useful examples of aerosol therapy of the lungs. Indeed, the principles of this form of therapy are employed every time a mother sets up a croup kettle to provide steam inhalation for her coughing child.[3] The same principles, used under more exacting conditions, are applied when oxygen and certain pharmacologically-active drugs are administered.

However, as pointed out by Karp,[4] it was not until the advent of the newer chemotherapeutic and biotherapeutic agents and the availability of small, efficient and inexpensive nebulizers that interest in direct medication of respiratory tissues was brought to the fore. These developments have also helped to place inhalation therapy on a much sounder and more scientific basis. They have also served to advance the administration of drugs by inhalation and to put more emphasis on modern aerosol therapy.

Aerosol therapy has been defined[5] as the introduction into the respiratory organs, by inhalation, of mists produced by nebulizing medicated solutions. It is said[6] that aerosols for the direct therapy of bronchial and pulmonary diseases have been used for nearly two decades. Epinephrine mist for the relief of bronchial spasm in asthma was the first popular use of this method. This was followed by aerosol sulfonamides. Subsequently, other therapeutic aerosols were introduced for the topical therapy of the respiratory tract and for rapid systemic effects through absorption from the inner surface area of the lungs.

Therapeutic aerosols are generally produced by the forceful passage of air or some other gas through a nebulizer which contains the medicated solution to be nebulized. Without going into details on the various types of equipment,[4,7,8] it may be said that the development of improved inhalers, atomizers, nebulizers and insufflators has been a prime factor toward increasing the efficiency and acceptability of inhalation therapy.

Methods for stabilizing the mists and making them less irritating have also contributed to the popularity of this type of treatment. This is achieved by adding a

substance to the medicated solution, or nebulin, that will lower the vapor pressure of the droplets and stabilize the particle size distribution. Glycerine is generally recognized as the most suitable substance for this purpose. In addition to stabilizing the mist, it reduces irritation and may retard absorption.[2] However, glycerine is not needed with penicillin or streptomycin. Other substances which lower the vapor pressure are propylene glycol, sugar and urea.[4]

In a special report on inhalation therapy, Barach[9] and his colleagues explain that the purpose of inhaling nebulized solutions is to deposit in the respiratory passages and the alveoli small droplets of substances suspended in air. They stress that the size of the particles in therapeutic aerosols exercises a critical effect on the site of deposition and absorption from the respiratory tract. Particles of small size, ranging from 0.3 to 0.8 micron in radius, pass readily through the tracheobronchial tree into the alveoli, where varying proportions are absorbed. Particles of relatively large size, such as those of more than 10 microns in radius, are mostly precipitated on the pharynx, larynx, trachea and large bronchi.

It is evident from the foregoing that the particle size of the mist is a determining factor, not only in the efficacy of the medicament, but also in the site of action. This is understandable in view of the fact that aerosol therapy may produce a twofold effect. First is the local application of the drug to the diseased part and, second, is the systemic absorption of the drug through the pulmonary capillary bed.[4]

Thus, in explaining the value of inhalation therapy to obtain a general systemic action, Smith[10] observes that the lungs present an enormous absorbing surface of great vascularity. Hence, the respiratory tract provides an almost direct access to the blood and a promptness of action which is only slightly inferior to that of intravenous injection. Among the medicaments that have been found to produce a systemic therapeutic effect when introduced by inhalation are penicillin, streptomycin, aminophylline and vitamin B_{12}.

In some cases, this systemic effect may also be used to augment the local action of certain drugs, such as penicillin. In most cases, however, inhalation therapy aims primarily at providing a local effect in the respiratory tract. The employment of antibacterial agents in this manner, says Aronovitch,[11] is one of the most important uses of the aerosol method of therapy. However, other medications are used for their physiological effects. Medications directed to the bronchial tree by means of aerosol therapy can cause physiologial alterations in various disease states in this area.

Many diseases have benefited from the use of inhalation therapy. Among those that have been treated with medicated aerosols are tracheitis, acute and chronic sinusitis, bronchial asthma, bronchitis, bronchopneumonia, bronchospasm with or without edema, lung abscess, acute laryngotracheobronchitis associated with edema, pulmonary tuberculosis, acute pneumonitis and atelectasis.[4-5-11]

It is not the purpose of this review to discuss the general use of inhalation therapy in the treatment of these diseases, but rather to consider the newer developments in this field. Those who are interested in this subject will find that comprehensive reviews of the older work are available.[2-5-12] Herring,[13] for example, has prepared a compilation of the principal articles on aerosol therapy through 1948. Also indicative, but devoted specifically to inhalation therapy with antibiotics, is an article[3] published in DRUG AND COSMETIC INDUSTRY in 1949.

An increasing number of substances is being used in inhalation therapy. Aside from the volatile anesthetics, which are beyond the scope of this discussion, one may cite the growing use of gases like oxygen and helium both in the direct treatment of various disorders and as vehicles for active medicaments. The growing list of drugs carries antibiotics and chemotherapeutic agents, including antitubercular drugs like para-aminosalicylic acid and isoniazid; epinephrine and the related and growing group of sympathomimetic amines; antispasmodics like aminophylline, mucolytics such as ammonium chloride; proteolytic enzymes such as specially prepared trypsin, various surface-active agents; and certain vitamins, notably vitamin B_{12}.

According to Barach,[14] the use of oxygen in medicine began a little over three decades ago with the treatment of pneumonia. Since then, the beneficial effects of inhaling high concentrations of oxygen have been seen in many pneumonia patients.[6] In addition to its value in pneumonia, the usefulness of oxygen therapy has been demonstrated in such conditions as cyanosis, shock, severe and persistent cardiac pain, dyspsea, acute pulmonary edema, congestive failure, certain cardiac arrhythmias, rising heart rate, sharp fall in blood pressure, marked leukocytosis, high fever, and Cheyne-Stokes respiration.[15] Inhalation therapy with oxygen is also effective in asthma and is of proved value in the treatment of war gas poisoning, respiratory failure due to poisons and other causes, drowning, severe hemorrhage and acute altitude sickness.[9]

The therapeutic use of oxygen is based on the existence of a state of anoxia, namely, lack of oxygen in the tissues. Although the administration of oxygen is said[9] to be the mainstay of inhalation therapy, other procedures have been developed to improve respiratory function. These include the employment of helium with oxygen and of oxygen or helium-oxygen mixtures under positive pressure.

The value of using such gas mixtures is well indicated in Barach's[16] discussion of the physiologic therapy of asthma. He points out that the inhalation of helium with oxygen not only provides more efficient alveolar ventilation at lower physiologic effort, but also may result in a cumulative bronchial relaxation with the development of remission in a few days. Helium-oxygen therapy is also employed in conjunction with procedures in which bronchial relaxation is obtained with other agents, such as epinephrine.

(*Continued on page 434*)

Building and Protecting Good Will

by Arthur Blum

MOCK & BLUM, NEW YORK

The first important factor in a nationally advertised business is to select a trade-mark which is free from conflict with prior marks. It is customary to make a search in the Patent Office among the registered marks. This is frequently insufficient, because many marks have been in use without being registered and this may lead to serious legal difficulties in one or more states, which may prevent national advertising and distribution. There have been many cases in which different concerns have exclusive rights to use some trade-mark in one or more states. At one time, there were at least five Rheingold breweries.

Recently, a large concern wished to use a mark in the cosmetic business. The records of the Patent Office failed to disclose any such mark. A trade investigation showed that there were three concerns, each doing business in a different part of the country, using this trade-mark. This prior investigation made it possible to purchase the rights of these prior users for small sums. Otherwise, local retailers would have been subject to local suits in local state courts. Registration in the Patent Office is no defense under these circumstances. It is therefore desirable to consult trade papers and make other appropriate investigations before proceeding with a national advertising campaign.

The investigation must not be confined to similar merchandise. The laws and practice of the 48 states must be considered in addition to federal law. Some states, either by local state law or by local practice, give very wide protection to a well known mark. Thus, Bulova was able to stop the use of "Bulova" in a retail shoe business. "Ronson" was able to stop the use of its name for sweaters and other knit goods. The manufacturer of "Kent" cigarettes was involved in a law suit which was brought by the owners of the well-known "Kent" mark for brushes and the like. The publisher of a well-known magazine was held to have the right to enjoin the use of the name of the magazine on articles advertised therein. Due to the fact that many manufacturers of women's apparel have used their well-known names to sponsor perfumes, concerns in the women's apparel field have brought suit to stop the use of their trade-marks on perfumes. "Thomas" has a register of well-known trade-marks and this book and other sources should be examined in order to avoid any such general conflict. If the mark seems to be clear, it is prudent to make a small sale in interstate commerce and to file application for registration in the Patent Office, and to defer extensive advertising and national promotion until the mark has been registered. If the Patent Office grants a preliminary allowance of the application, such application is published before final registration. Anybody who wishes to object to the registration can then file a notice of opposition against the application. The notice of opposition may reveal a conflicting source which was hitherto unknown. The registration is not granted until the opposition is decided. If the registration is not opposed and is finally

granted by the Patent Office, it is fair to presume that the mark is free from prior claims throughout the United States.

In addition to searching the proposed mark, care should be taken not to imitate the color, appearance or design of well-known distinctive packages or labels for the same or competitive goods. This also applies to bottles and other containers. It has been possible for many years to protect distinctive packages and bottles by design patents, and also to protect distinctive labels and wrappers by copyright. A copyright requires a notice of copyright upon the copyrighted article. This is not required in the case of a design patent. According to two federal appellate decisions which are now under review by the Supreme Court, it is possible to secure a copyright upon an industrial design, such as a bottle or container. Therefore, if any similar bottle or label or package has a copyright notice, this matter should be carefully considered in order to avoid copyright infringement, in addition to searching design patents. Irrespective of statutory protection such a design patent or copyright, there is a law of unfair competition. There have been several decisions, one quite recent, which held that the law of unfair competition would not protect a bottle or container which is a stock design or of conventional design, but that a peculiar or unusual shape may be protected under the general law of unfair competition, even without patent or copyright.

After having made all the necessary searches in order to make sure that the proposed mark, label, package, bottle or other container are free from adverse claims, the next step is to secure maximum protection. Trademarks can be registered in the Patent Office after sales in interstate commerce. They can also be protected by local state registrations in nearly all the 48 states, but such state registrations are a needless expense. The appearance of a label and the surface appearance of a package can be protected by copyright. This has been the law for many years. The term of a copyright is 28 years and it can be renewed for another 28 years by appropriate procedure, which includes an agreement with the designer to transfer the right of renewal of a copyright to the concern which has retained him. While the distinctive appearance of a label or package or bottle can be protected under the general law of unfair competition, a copyright is much more effective. Deliberate violation of a copyright is a federal penal offense. The federal marshal, under court order, can seize the infringing merchandise. The civil penalties for infringement of copyright or design patent are severe. It has been known for many years to protect bottles and other containers by design patents, but such design patents have not been favorably considered by the court in actual litigation, unless they involve some unusual design. If the Supreme Court decides that industrial designs of bottles, containers, etc., can be protected by copyright, such copyright can be easily secured for rather simple variations from ordinary design, and there is a much better chance in litigation if the reliance is upon a copyright rather han upon a design patent.

It is highly desirable to start national distribution immediately in each of the 48 states. Ordinarily, the prior right in a trade-mark or the like in each state is in favor of the concern which has made the first sale in this state. As a result, there has been a recent case in which a trade-mark was held to belong to one concern for 47 states and the same mark was held to be the property of another concern for the remaining state. It is not possible in many cases to establish national distribution immediately. Under such cases, it is advisable to publish a small advertisement in a magazine which has national circulation among the general public, offering to sell by mail if there is no local distributor. This is equivalent to national distribution through local distributors. In one well-known case, the name of a famous New York department store was copied in a Western state in connection with a local clothing business. The defense was that the business of the department store was confined to New York. However, the department store was able to prove that it did a national mail order business and its exclusive right to its name was sustained.

Copying and infringement must be vigilantly suppressed. As a minimum, a notice by registered mail should be sent immediately. The law does not favor delay in the assertion of rights. If an infringing use or copying has gone on for several years without objection, the sympathy of the court is often with the infringer or copyist, unless there has been an absolute counterfeit of the mark or the like. On the other hand, if prompt notice is given, the court may say that the infringer or copyist went ahead at his peril. Even then, litigation should not be unduly delayed. If litigation is promptly started, the infringer does not have much interest in the matter and he may quit. If there is a long delay, the infringer or copyist has an established business, and he will fight.

If the user of the trade-mark does any export business, searches should be made in the pertinent foreign countries to make sure that the mark is clear. There have been many cases in which a trade-mark is owned in one country by one concern, and it is owned in another country by another concern. This also applies to investigation of the appearance of package, bottle, label, other container and the like. Foreign registrations should be immediately secured. In many foreign countries, even including Canada, the registration is of great importance. If an unscrupulous foreigner secures a registration, this leads to serious difficulties. In some foreign countries, it is impossible to attack a local registration, even if the American concern has had prior sales in the respective foreign country. Also, especially in the case of drugs, many foreign countries have local health regulations and other regulations with which the American exporter must comply.

To sum up, make sure that you are clear from adverse prior rights, and then be vigilant to assert your rights.

Moisture and Shaving Creams

by George M. Naimark, Ph. D.

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It has been shown many times that adequate pre-shave facial preparation is one of the most important factors in satisfactory shaving. Workers in the field and manufacturers of shaving materials continually stress the need for thorough washing of the face with toilet soap and hot water before shaving. The soap emulsifies the natural oil covering the hair and puts the facial dirt into suspension, permitting the water to be absorbed by the whiskers. Hot water accelerates this emulsification and water-absorption process and is much more effective than cold[1]. After soaping, the face should be carefully rinsed to remove the gritty soil which tends to dull the razor, and the face left wet before the application of the shaving cream. This pre-shaving facial preparation is an absolute necessity and should be rigorously followed regardless of the type of shaving soap or cream subsequently used.

The preliminary soaping with hot water removes the natural facial oils and permits the water provided by the shaving preparation to be absorbed by the hair. At this stage, the water held by the shaving cream in contact with the face softens the beard. Although the surface-active agents, soaps and fatty acids incorporated in shaving materials will aid in this beard-softening process—especially if facial preparation is inadequate—the bulk of the water-softening is attributable to the water held in contact with the whiskers by the shaving cream.

This importance of water in shaving has been pointed out repeatedly. Kalish stated[2] that "the shaving process depends primarily upon two factors, namely, a sharp razor blade and a thoroughly wet beard." Lesser speaks[3] of "the rapid softening of the hair by the water in the lather" as one of the necessary conditions for effective shaving. Hilfer says[4] that "the term 'softening' covers a multitude of specific acts but the most important is the actual wetting of the beard with water." Casselman found after four years of shaving research at Mellon Institute[5] that "water is actually the great softening agent for hair . . . water penetrates the hair by absorption, reducing its strength and hardness some 60 per cent and its elastic properties about 90 per cent." Casselman and Hollander further emphasize[6] that "the face should be kept wet dring the entire operation." One of our leading firms has aptly summarized this principle in its advertising as follows:

> ". . . water, and plenty of it, must be brought in contact with the base of the beard and *held* there. For it is the water that really softens the beard and prepares it for the razor. Other things being equal, the preparation (be it shaving stick, cake-in-a-cup, or cream) which can 'deliver' the most water right where it is needed, should give you the best shave."

It would appear, then, that the most important characteristic of a shaving preparation is its ability to deliver water to the whiskers after pre-shave soaping has removed the natural oils. Secondary functions include the support of the hair by the shaving cream and

lubrication of the blade in its movement over the face.

Because of the great importance of water in shaving preparations and the unfortunate dearth of quantitative data in this field, a series of experiments was designed to determine the amount of water in contact with the face with various commercial and experimental shaving creams under conditions of actual use. These experiments are described in detail below.

Total Weight of Shaving Cream and Water in Contact with Face

Before determining the amount of water in contact with the beard, an experiment was conducted to find the combined weight of shaving cream and water in actual contact with each square inch of facial surface. An area of four square inches was marked off on a cheek after the face had been thoroughly washed. The marked-off area was wetted before the application of the shaving preparation and the shaving cream applied following the manufacturer's directions. All shaving cream and water outside of the marked boundaries was wiped away with a dry towel before the shaving cream and water within the four-square-inch area was carefully scraped off with a dry spatula. All of the material removed from the face was transferred to a previously dried and weighed bottle. The bottle was immediately capped and not opened again until the sample was ready for weighing. Each sample was run in duplicate and, on the average, the deviation of each run from the average of the pair was 10.1 per cent. This is considered to be satisfactory reproducibility for this type of study. Results are shown in Table I.

TABLE I

TOTAL WEIGHT OF SHAVING CREAM AND WATER IN CONTACT WITH ONE SQUARE INCH OF FACIAL SURFACE

Sample	Average Weight in Milligrams
Commercial Cake Shaving Soap	85
Commercial Aerosol	103
Commercial Lather	131
Commercial Brushless No. 1	228
Commercial Brushless No. 2	370
Experimental Brushless (TV)*	400

*Patent Pending

The data show that the brushless creams have more shaving cream and water in contact with the beard than the cake soap, lather or aerosol preparations. Although these data are dependent to an extent upon individual characteristics in the application of shaving preparations, it is felt that the results clearly indicate the orders of magnitude which exist.

In order to ascertain the degree to which the initial wetting of the face (i.e., after washing but before application of the shaving cream) contributed to the total weights listed in Table I, the following experiment was conducted. After washing the face, an area of four square inches was marked off on one cheek. The area within the boundaries was thoroughly wetted and any moisture outside of the boundaries wiped away with a dry towel. All of the water within the marked off area was blotted onto a previously weighed piece of filter paper and the paper immediately re-weighed. Repeated experiments indicated that the maximum amount of water that will adhere to each square inch of facial surface, before shaving cream application, is, perhaps, 15-20 milligrams. The figure of 15 milligrams per square inch will be used in subsequent calculations.

By subtracting the weight of water placed on the face before the application of the shaving cream (15 milligrams per square inch) from the total weights listed in Table I, the weight of the shaving cream by itself was determined. These weights are listed in Table II.

TABLE II

WEIGHT OF SHAVING CREAM IN CONTACT WITH ONE SQUARE INCH OF FACIAL SURFACE

Sample	Average Weight in Milligrams
Commercial Cake Shaving Soap	70
Commercial Aerosol	88
Commercial Lather	116
Commercial Brushless No. 1	213
Commercial Brushless No. 2	355
Experimental Brushless (TV)	385

Percentage of Water in Shaving Preparations Under Actual Conditions of Use

The six shaving preparations studied were placed in previously dried and weighed petri dishes two inches in diameter just as they would be applied to the face: the brushless creams and aerosol were used as is, while the cake soap and lather cream were transferred to the petri dish after whipping up a lather with a conventional shaving brush. Each petri dish was weighed immediately after the addition of the shaving preparation. The uncovered petri dishes were placed in a 37° C oven and dried to constant weight. At this temperature, the shaving preparations retain their natural appearance and do not decompose. Each sample was run in duplicate and results checked each other within approximately one per cent.

Although a small part of the loss of weight at 37° C. can be attributed to the evaporation of other volatile components—perfume, for example—the loss of weight is considered to be due essentially to water evaporation. The average of the duplicate runs is shown in Table III on page 453.

Total Weight of Water in Contact with Face

When the weights of the shaving cream in contact with each square inch of face (Table II) are multiplied by the percentage of water in each of the creams (Table III), the weight of water per square inch of face

(*Continued on page 452*)

Medicine's New Taste

Flavors in Pharmaceuticals and Their Ever-growing Importance to Both Maker and User.

by Fred Wesley

FLAVOR RESEARCH DIVISION
FRITZSCHE BROTHERS, INC., NEW YORK

"Medicine no longer tastes like medicine!"—These few meaningful words from the lips of an anxious mother, startled at the apparent ease and pleasure with which her finicky youngster has just completed swallowing a teaspoonful of medical science's latest "wonder" drug, reflect the enormous change we are witnessing today in the taste of pharmaceuticals.

No longer do we look with horror at the white-labelled medicine bottle whose "older sister," in days gone by, used to harbor that health-bringing elixir, invariably bitter and evil of taste. To some, getting well seemed hardly worth the ordeal of an aroused palate, tormented by "four daily doses" of a well-meaning doctor's prescription. Unpalatability was one of its most prominent features.

Attempts to cover the obnoxious character of these earlier medicines by their individual users with syrup, juice, and the like met with only partial success. Along, then, came the flavor industry, ready to apply its vast fund of scientific and practical information to the problem of improving the taste of pharmaceuticals. The impact of this endeavor and its undeniable success have brought about fundamental changes, from the standpoint of flavor, in the public's attitude towards medicines. Today, palatability in a medicine is a must. Alert pharmaceutical manufacturers, mindful of this fact, will find the flavor industry eager to help them meet this challenge.

Definitions

What, actually, is a flavor and what is a pharmaceutical? No doubt, they both play important parts in our daily lives. Yet, when it comes to defining these two terms, we may find ourselves at a loss. For that reason, let us consult Webster's "New International Dictionary," where we find: "A flavor is that which imparts to anything a gratifying odor or taste or both" and, "A pharmaceutical is a preparation used in restoring or preserving health." Modifying these two definitions slightly, to make them tie in with our industry, we may say that the subject of flavors in pharmaceuticals deals with substances intended to counteract the non-gratifying taste or taste plus odor of preparations used in restoring or preserving health.

What Purpose Do Flavors in Pharmaceuticals Serve?

Why do manufacturers of pharmaceuticals go to the expense of using flavors at all? There are many cogent reasons, most important of which are as follows:

1. *Acceptability of the medicine.* Two points are involved here. First, we must overcome the patient's aversion to the medicine when taking it for the first time and, second, we must leave with him, after the initial administration, a sufficiently favorable memory of the medicine to make subsequent doses less or non-distasteful.

2. *Retention of the medicine in the body.* We all know the emetic tendencies of bad tasting foods and medicines. Unless retained in the body they will have failed to fulfill their purpose of preserving or restoring health.

3. *Psychological effect of the medicine.* The psychological effect of a pleasant tasting medicine, as opposed to that of an evil tasting one may have a bearing upon the degree of speed and intensity with which the drug exercises its beneficial action. Many physicians feel that pleasant taste in a medicine will put the patient in a better frame of mind, thus helping the medicine to do a better job.

4. *Advertising pharmaceuticals.* Many observers consider this point the most compelling reason for the use of flavors in pharmaceuticals. Advertisers are constantly trying to find new "angles" to catch the public's fancy. The flavor "angle" is a very convincing one when you want to sell something intended to be eaten or swallowed. Many, if not the majority, of these pharmaceuticals are, of course, restricted to prescription dispensing. But, the prescribing physician, as well as the dispensing pharmacist, are constantly exposed to the same drum-beating ads in their professional and trade journals, as is the general public via other media.

5. *Identification.* This last point ranks high in importance. A pharmaceutical may be composed of many ingredients with fancy names and chemical symbols but the only properties, outside of color and shape, that the average layman—and he is the one who pays the money—can use to identify or describe a product are its odor and flavor. Many a drug store has been confronted with requests for that "cough syrup that tastes like raspberry," many a physician at the patient's sickbed has been "ordered" to prescribe "that brownish fever medicine that tastes like chocolate."

What Requirements Must a Flavor Fulfill?

1. *Organoleptic suitability.*

It must do the job, i.e.—as we stated in our definitions at the beginning—it must counteract the nongratifying taste, or taste plus odor, of the pharmaceutical.

Simple coverage of the unpleasant part may suffice or, above that, an additional more distinctive taste effect may be called for.

Moreover, the frequency of a medicine's administration and particularly the duration of its use will, to a certain degree, determine the organoleptic suitability of the flavor. For instance, an old man afflicted with a chronic disease requiring one and the same medicine, month after month, will probably tire of a distinctively strong flavor type, while a young boy suffering from a high fever may welcome that powerful note in the few doses necessary for his recovery.

2. *Chemical and physical compatibility.*

It must be chemically and physically compatible with the medicine. In other words, it must not cause any untoward reaction, nor must it be immiscible with, nor insoluble in, the medicine.

3. *Conventional consistency.*

Its type must not generally be considered foreign to the remedy. For example, a cheese-flavored stomach medicine would enjoy as little consumer acceptance as a pickle-spiced cough syrup.

While large flexibilities regarding the choice of flavors exist, convention, tradition, and habits make us subconsciously associate certain tastes with certain foods and medicines. The pharmaceutical flavor chemist must bear this fact in mind, if his product is to enjoy success, not only for its medicinal value but for its taste appeal as well.

4. *Color harmony.*

It must neither impart undesirable color to the medicine, nor must its very type be in conflict with the existing color of the medicine.

Thus, many of the water-white elixirs currently on the market require vanilla flavors of the uncolored or colorless type rather than the conventional dark-hued variety. On the other hand, a berry-red elixir demands a type of flavor commonly associated with that color, namely, strawberry, raspberry, cherry, etc.

5. *Sufficient strength.*

Its strength must be of such intensity as not to necessitate its use in unduly large quantities. However, with today's immense variety of flavors available, the pharmaceutical manufacturer will encounter little difficulty in securing the strength that he desires.

Types and Forms of Pharmaceuticals

What are the principal types of those pharmaceuticals which, with the help of flavors, have attained that degree of palatability essential for their success?

While dental preparations and cold remedies head the list, such relative newcomers as antibiotics, sulfas, antihistamines and vitamins are rapidly closing in on the "old time" leaders. The peppermint flavored stomach medicine, in which the peppermint serves the twofold purpose of a medicine, through its carminative action, and of a flavor, through its taste and odor, can no longer lay claim to its unique position in the field of flavored pharmaceuticals. It must share the spotlight with members of other groups, principally sedatives, cardiovascular agents, food supplements, and regulators of liver function. The physical forms of these pharmaceuticals range from liquids, powders, and pastes to tablets, capsules, and lozenges. Some serve primarily the young, others the aged, most are for general use.

Types of Flavors, Non-Aromatic Taste Improvers, Quantities Used

The types of flavors that provide pharmaceuticals with their pleasing character are far too numerous to mention one by one. Most of us have taken medicine at one time or other whose taste reminded us of fruit, mint, chocolate, vanilla, maple, root beer, spice, butterscotch, nut, coffee, or honey. Modern science has created an imposing array of synthetic and artificial taste improvers, upon which the pharmaceutical flavor

(*Continued on page 430*)

COURTESY HELENA RUBINSTEIN

Cleansing Creams

by Harry Hilfer

Cleansing creams are offshoots of cold creams altered somewhat to enhance their ability to remove soil from the face. In their original form they appeared as beeswax—borax emulsions, containing a somewhat lower concentration of waxes and a somewhat higher percentage of water—so that the cream appeared softer. Their efficiency depended on the ability of the emulsion to incorporate into itself the superficial soil on the skin surface, particularly that portion easily wetted by the oil phase. After application and gentle massaging the film was removed with tissues, leaving a thin film on the face which could subsequently be removed with soap and water—or left on the face if so desired.

Many women used cleansing creams of this type as a quick means of removing make-up before washing with soap and water; others enjoyed the smooth feel imparted to the skin by the residual film and therefore limited the facial cleansing operation to the cleansing cream treatment, without any further supplementation of the soap and water treatment.

Another early form of cleansing cream was the so-called cleansing-melting cream, which consisted of a mixture of oils and waxes designed to liquefy on gentle massaging during application and to function in much the same manner as the beeswax-borax emulsion. This latter cream, which has since lost its popularity, enjoyed rather good success for a long period of time, but suffered from physical deficiencies—principally softening at elevated atmospheric pressures and a syneresis which was evidenced by the appearance of oil droplets on the cream's surface. Attempts to overcome this difficulty by the incorporation of lanolin and a small percentage of water were generally successful, but it was much more difficult to overcome its inherent tendency to become too soft at high summer temperatures.

The beeswax-borax cleansing cream is still in fair use, but additions have been made to the formulation to enhance its cleansing properties. These additions have been made possible by the introduction on a broad commercial scale of the newer synthetic detergents. The non-ionic surface agents particularly lend themselves to enhance the cleansing functions of these creams. The principle behind their use still remains the same, but by further additions of these substances their efficiency has increased greatly. The beeswax-borax emulsifying system remains a good one and is elastic enough to permit a good-sized variation on the water oil ratio. For example, it is perfectly possible to form either water-in-oil or oil-in-water emulsions by this method—the phase difference being dependent on the percentage of water and the percentage of beeswax and borax present. Using this system as a base it is therefore possible to incorporate further surface reducing substances to enhance the ability of the finished preparation to incorporate into the emulsion further substances, such as the skin soil. Many of the non-ionic agencies are capable of water-in-oil emulsification and others of oil-in-water, and, given this choice, the manufacturer is enabled to formulate his product to function in whichever fashion he desires.

As stated above formulations of this type are possible but they are not necessarily easily done. Any experienced formulator knows that it is rarely possible to make an addition of this sort to an acceptable (from a stability standpoint) product without making other compensating changes to offset the effects of such an addition. The valuations possible are so great that its discussion must necessarily be outside the scope of this article. However, it could be said that there is no certain method of determination of stability by theoretical methods. Any new formulation should be tested thoroughly to be sure.

Glyceryl monostearate and other glycerides play a part in the new types of cleansing creams but the scope of surface active agencies extends over a large number of compounds including ethoxylated sorbitan esters of polyethoxylated higher alcohols and other polyethoxylated polyhydric alcohol esters. In general the hydrophylic function is controlled by the length of the polyethoxylated chains, and the shorter this becomes, the closer does the compound approach a water-in-oil emulsifying function. This type of agency is less likely to interfere with the beeswax-borax emulsion than are the more potent ionic emulsifiers and are therefore favored. Anionic emulsifiers are being used, however, since by their incorporation greater activity could be effected. Greater wetting, and therefore easier penetration, of the vehicle into the pores can be effected by the addition of many of these compounds—particularly where the hydrophile is in the center of the molecule—thus effecting a better possibility of reaching soil in crevices into which the cream would not otherwise penetrate.

The whole tendency in cleansing cream formulation is towards a product which would remove a maximum of soil, and under the present methods of usage leave a pleasant-feeling residual film after the film's removal. I am of the opinion that none of the creams used in this fashion—that is by application and subsequent removal with tissues—can approach soaps insofar as its efficacy in removing foreign substances from the skin is concerned. The mere fact that there is a residual film remaining after this treatment implies incomplete removal; but I am not at all sure that a complete cleansing is desirable. There are many people who believe that irritational complaints apropos the use of soaps are actually complaints due to too good a cleansing. If we are to assume that a large segment of women favor an oil film on their faces after cleansing this would indicate that a more desirable method of cleansing would be by the use of an agency which would selectively remove the undesirable substances on the skin surface and to leave behind or to replace a certain amount of the oil normally desirable. Several products of this type have appeared on the market recently but it is too soon to foretell how successful they will be.

The newer products are departing however from the classical beeswax-borax emulsion and though they are emulsions, greater stress is being placed on the detergent properties they possess than is possible in the usual older type of preparation. We now have a form that seems to be acceptable but is capable of improvement and I doubt if there are many of us who could predict with any certainty in which direction this improvement should run. The more cautious manufacturers are therefore inclined to keep their products in the conventional and known satisfactory forms, and to improve the various functions by cautious additions without radically changing the form.

There are other approaches, however, which bear consideration. Skin pH is being investigated to a

(Continued on page 451)

Glycerine in Cosmetics

by E. G. McDonough
EVANS CHEMETICS, NEW YORK

Basically nearly every trend in America, whether it be social or economic, will have its effect upon the use of glycerine in cosmetics. Let us look at a few of these.

The prolongation of life through proper diet, modern medicine and general care has, and is, creating an ever-expanding market of older skin demanding the lasting youth-like softness and smoothness that glycerine's presence in cosmetics imparts to the skin.

The raising of basic standards and the consequent ever-decreasing servant class in America require the American woman to use her hands more and more. Despite the increased use of modern labor-saving home appliances, automatic dishwashers, clothes-washers and dryers, an ever-increasing group of housewives is in more frequent contact with skin-drying materials such as detergents and soap cleansers. Hand lotions and hand creams with the humectant action of glycerine are the best and most satisfactory solution to this problem. Recently silicon-containing preparations have been introduced which form protective films better and may offer better barriers at skin level than formerly used preparations. However, without glycerine, their action does not give a positive improvement to the feel or appearance of the skin.

Continual social intercourse has been made possible by the subtle transformation of America into an almost completely urban-living society, where because of modern fast transportation, scarcely a day, and never a week, goes by without almost every woman having social contacts. This makes it necessary for hands that work to look like hands of leisure.

Greater coverage and improvement in the media that reach the consuming public assure a continuous growth of the cosmetic industry. Modern television can show an audience, which many consider to be captive, more dramatically how glycerine-containing products function. Color TV will be even more effective in telling this story.

Advances in other industries result in the growth of the cosmetic industry. For example, recent advances in the textile industry have increased the use of glycerine in cosmetics. As stockings have become sheerer, there is an increase in the demand for depilatories, shaving creams or recently for special creamy shaving lotions for women. The last two contain appreciable quantities of glycerine. In the modern depilatories the presence of glycerine interferes with the dehairing action of the mercaptan. Yet even though this new and growing group of products offers little hope for glycerine consumption, there remains the fact that no matter how the hair is removed, the dehaired skin of the leg is, and remains, more attractive if glycerine-containing lotions or creams are smoothed on frequently.

There is a noticeable trend to label creamy lotions containing glycerine as body lotions rather than hand lotions. In part, this may be due to the effect of the use of harder, abrading textiles for lingeries.

More important, however, is the desire for a smoother and softer finish not only to the skin of the hands but also to the skin of the entire body. This desire is emphasized by necessity because we pamper ourselves with warmer and warmer homes in the winter months, and the resulting greater dehumidification of the air and the skin cause a demand for the softening action of glycerine-containing lotions or creams.

The trend in America to so-called dry skin has been so great that foundation bases more and more are stressing their moisture-retaining action which in most instances is due to the presence of glycerine in increasingly larger proportions.

The competitive rivalry between tooth pastes within the past year has resulted in an intense and extensive step-up in advertisements and consumer articles. Therefore, despite recent claims that only one brushing per day is needed, the amount of tooth paste being used continues to increase, and whether ammoniated, chlorophylated, anti-enzymated or just plain old-fashioned tooth paste, glycerine is still a most desirable ingredient.

The availability and decrease in the price of the lower alkyl fluoro-chloro compounds have given rise to a new group of products called aerosols. Whether the justification for such products is ease, utility or effectiveness, their use in the successful exploitation of such products as shaving creams, hand creams and other glycerine-containing items will result in increased glycerine consumption.

*Abstracted from paper presented before Association of American Soap & Glycerine Producers, Jan. 27, 1954.

Mercaptan permanent-waving has created a new comsetic for home permanent waving. Although the many millions of waving sets sold each year do not contain glycerine, nevertheless their use has made women more beauty-care conscious. This will result in the use of other cosmetics which do contain glycerine, especially those which beautify the hair, such as shampoos, cream rinses, and grooming aids.

These are some examples of the more significant trends that have influenced generally and specifically and will continue to influence the growth of the use of glycerine in cosmetics.

One, however, cannot overlook the fact that glycerine is not used just in the preparation of cosmetics but is often a necessary and important material for items used in the packaging and labeling of toilet goods. To list a few of these: cellophane, greaseproof papers, glassine papers, waxed papers, decalcomania compositions, paper foil, paper laminates, adhesives, printing inks, cork and cork liners. Other examples are: alkyd resins for protective coatings on containers, caps, cans, and collapsible tubes, special cleansing pads and cleansing tissues and gelatin capsules.

In addition, the use of glycerine in natural products like fats and oils and lecithin appears to be increasing as these body-metabolizable materials gain in popularity over the non-assimilated petroleum products.

The so-called monoglycerides of fatty acids continue to grow in popularity as their initial use expands from anti-perspirant creams to other creams and creamy lotion cosmetics.

The acetylated derivatives of these monoglycerides have become available only recently. Their interesting properties assure their future in cosmetics.

The sulfated monoglycerides of the fatty acids of cocoanut oil which for a long time because of patent control could only be used in a single shampoo, undoubtedly now will be used to a much greater extent, not only in shampoos and bubble baths, but possibly in other items such as toilet bar detergents.

So far, I have said very little about how or why glycerine is used. I have tried to stick to the subject of the trends effecting its use. However, before closing, I should like to point out two things which might prove valuable to users and possible users of glycerine in the cosmetic industry. *(Continued on page 430)*

COURTESY HELENA RUBINSTEIN

Hair Clippings For Shampoo Evaluation*

by V. C. Ester and M. Longfellow

RESEARCH AND DEVELOPMENT LABORATORIES
OF COLGATE-PALMOLIVE COMPANY

With the advent of the use of synthetics in shampoos there arose the belief that these remove the "natural" oil of the hair to an extent which is detrimental to the hair; this belief is undoubtedly founded on the defatting abilities of these materials when used on substrates other than hair. Statements such as, "Sulfonated oil soapless type shampoos are excellent hair cleansing agents. They readily remove the natural oil from the hair—"[1] and "—in the process of thorough cleansing, too much of the natural oil may be removed, and the hair left quite unmanageable"[2] are common in the literature, and a British patent states in the disclosure, "A simple solution of a commercial synthetic detergent is not very satisfactory as a hair shampoo since in general these materials have an excessive tendency to degrease the hair—."[3] Thus, this belief that the synthetics rob the hair of "natural" oil is firmly entrenched.

In December of 1950 Barnett and Powers presented before the Society of Cosmetic Chemists[4] and later before the Toilet Goods Association, Inc.[5] a method for the determination of grease removal from wool by shampoos and detergents and "suggested that detergents and soaps for shampoos be studied with this type of test to get a clearer and more accurate picture of

*Presented before Scientific Section, Toilet Goods Association, Dec. 9, 1953.

their cleansing power." These workers found that shampoos grouped as alkyl sulfates would remove 63 to 77 per cent of the grease from wool; soaps, from zero to 52 per cent; and miscellaneous shampoos, from 39 to 92 per cent. The scoured wool was classified as dull or bright according to its cleanliness, and, based on these findings, they concluded that, "the successful commercial shampoos are surprisingly poor and ineffective scouring agents," and that, "with at least seventy-five per cent grease removal required for a good shampoo, only four of the commercial shampoos met this figure."

In the *Consumer's Research Bulletin* for October, 1951[9], twenty shampoos were evaluated by the Barnett and Powers method to determine detergency, and the values so determined were published, although they were not used in rating the shampoos, "since it is not clear how much grease removal is desirable for best manageability of the hair." However, the belief of too great loss of grease is given new life by a statement in the text, "some of the new synthetic detergents, for example, do such a complete job of removing the natural oil of the hair and scalp that the hair is left quite unmanageable after it is rinsed and dried—."

We agree that the Barnett and Powers method of *in vitro* shampooing, by itself, is ingenious and does simulate actual shampooing, but we do not agree that it is permissible to extrapolate results obtained from the shampooing of raw wool to human hair. Anyone who has handled the standard wool supplied for this determination is aware that the yarn is very greasy and leaves the hands sticky, whereas hair which is ready to be shampooed will not ordinarily do this. There is good reason for these differences. In the first place, the sheep lives in a dirtier manner than the modern woman, so that more extraneous dirt is deposited on wool than on hair. In addition, the women who make up the bulk of the shampoo market wash their hair frequently, comb it daily, brush it occasionally, sleep on pillows, wear hats and scarves, all of which keeps extraneous matter at a minimum. On the other hand, sheep's wool is subject to the action of occasional rains but to very little other grease- and dirt-removing action. From these considerations it was apparent that a more suitable medium than wool should be available for a study of the detergency of shampoos. It seemed that hair clippings of human hair should be ideal. For our study we obtained clippings from beauty parlors, thereby limiting the work to hair from the heads of adult females.

Experimental Procedure

Operators are requested to collect the hair as cut without allowing it to drop to the floor. It is necessary, of course, in securing such slippings to assure that they will not be floor sweepings contaminated by ordinary dirt, cigarette butts, etc.

The hair so collected is cut to an average five-eighths inch in length with a scissors or an electric clipper. It is then blended by passing it through a Raymond Mill, the use of which was suggested by Albin Anderson of our Evaluation Dept. The screen is removed from the mill to permit passage of the hair. The hair to be blended is divided into three portions and a handful from each portion is put into the mill in turn. For a two-pound lot of hair it is found that five passes through the machine blend the hair so that individual lots may not be distinguished. The hair is then weighed on a trip balance into individual samples of 5.8 gm. and stored in small ordinary correspondence envelopes for convenience.

Chloroform was chosen as an extractant rather than petroleum ether for two reasons: first, its safety in presence of flames; and second, because it is a less selective solvent than petroleum ether. Work with wool showed greatly different results with petroleum ether and with chloroform used as described here. Petroleum ether gave the same results whether extraction was for one hour or four hours, whereas chloroform gave low results up to three hours but constant thereafter. Inasmuch as diethyl ether is lower boiling than petroleum ether of ordinary laboratory grade and cannot injure the fiber by heat, as it was feared that chloroform might be doing, the two solvents in question were checked against diethyl ether, with results shown in Table I.

TABLE I
Comparison of Three Extractants in Oil Removed from Wool

Shampoo	Percent Grease Found		
	Chloroform	Petroleum Ether	Diethyl Ether
None	13.2	7.7	9.1
A	4.3	3.6	4.4
B	3.5	3.0	

It is seen that petroleum ether removes much less grease from raw wool than either diethyl ether or chloroform, and that chloroform is more efficient than diethyl ether.

Extractions were run as usual without agitating the samples during the extraction period, and when wool was removed from the thimbles containing either of the ethers the agitation resulting from the removal caused an obvious loss of tacky, colored matter, showing that these solvents had not removed all grease, whereas in the case of chloroform, only traces of light tan material were left when solvent was squeezed from the yarn and evaporated. With shampooed wool, chloroform and diethyl ether removed the same amount of material, and petroleum ether removed less grease, but a much higher proportion than when raw wool was extracted, since the shampoo had removed most of the tacky, dark material left on the raw wool by ethers. Some of you may question the value of 13.2 per cent grease content of raw wool extracted by chloroform against the 6 to 10 per cent grease content reported by Barnett and Powers; in addition to the difference in

(*Continued on page 440*)

Cholesterol

by Edgar S. Lower

TECHNICAL ADVISER, CRODA INCORPORATED

part four . . .

(*a*)

Utilization Possibilities

(*b*)

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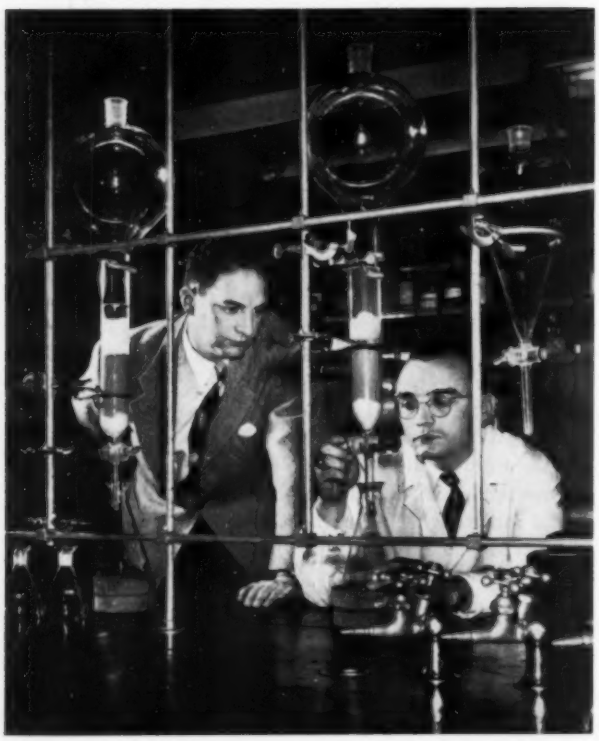
COURTESY OF AMERICAN CHOLESTEROL PRODUCTS INC.



Agricultural uses may first be mentioned under this heading, and in this connection cholesterol has been utilized as one of the effective emulsifiers of a two component emulsifier system used for preparing larvicidal compositions for the treatment of ponds or other stretches of water to eliminate larvae of mosquitoes and other insects, e.g. dimethyl phthalate 50 part volumes, pyrethium extract 0.5, cholesterol 0.2, Lissolamine C. (the second component) 3.0, hydroquinone 0.01, water 40 and ethylene glycol 0.5.[88]

It may also be used in the preparation of D.D.T. Emulsion, employing a similar two-component system utilizing sodium cetyl sulfate. Such an emulsifying system produces emulsions which are negatively charged. Using cetyl pyridium bromide in place of the sodium cetyl sulfate produces positively charged emulsions.

A study of the breakdown of cholesterol added to soils has been shown to be due to certain bacteria species of the genus Proactinomyces. Decomposition is generally rapid.[93]

During recent years there have been various reports on plant growth effects produced by steroid compounds, and in one case the growth and metabolism was increased by feeding plants with a two per cent cholesterol mixture. It has later been shown that when varying concentrations of cholesterol are fed to digitalis plants growing in the field, a significant effect is observable on growth, a total glycoside production in the leaves of the plant.[54]

Foodstuffs

A recent paper has given the cholesterol content of various foodstuffs in detail, showing egg yolk and brain to be the only foods to contain more than 1.0 per cent cholesterol.[110] Actually egg yolk is recognized as one of the best edible emulsifiers for producing oil-in-water emulsions and it consists of: protein 10 per cent, fat 23 per cent, lecithin 1.5 per cent, salts 3.0 per cent, water 45 per cent.

The cholesterol content of some (Norwegian) foodstuffs has been also reported, in terms of mgms per 100 grams wet weight, as follows:

Cream (35 per cent fat)	124
Dairy Butter	244
Margarine	186
Mutton	77
Chicken	113
Beef Fat	90
Pork Fat	99
Mutton Fat	89
Codfish	58
Haddock	64
Cod Liver Oil	570
Hydrogenated Marine Animal Fat	260-920

Cholesterol is reported to be the only sterol which is absorbed from foods, and the cholesterol in milk for example is claimed to be beneficial to its food value. The average cholesterol content of cow's milk has been given as 0.1258 per cent, and that of human milk 0.1385 per cent, in the form of esters. Cholesterol activates the digestion of oils by pancreatic lipase.[147,195,207]

Edible emulsions described as bread spreads and consisting of emulsified edible oil, waxes and water, using cholesterol as the emulsifying agent, have been formulated. Such emulsions may be "fortified" with vitamins or other diet factors and may contain added accessory agents such as dyes, colors, flavoring agents and perfumes.[18] Certain cholesterol esters are used as anti-spattering agents in margarine, and cholesterol has been employed as an anti-foaming agent.[144]

There is reference to the action of cholesterol in yeast fermentation, where it is said to inhibit the fermentation of living yeast cells, but increase that of yeast autolyzates. Fermentation in beer is inhibited by cholesterol, but irradiation of cholesterol gives a product which accelerates it, maximum acceleration being obtained with 0.05 per cent cholesterol, irradiated for an hour and added to the beer to be fermented.

Pigments, Resins and Plasticizers

The use of cholesterol in aiding pigment dispersion leads naturally to the field of paint and varnish manufacture. It is used in the production of suspensions of titanium pigments, in thermo-plastic materials such as are employed for paper impregnation, to render these impermeable to liquids and gases, e.g. waxes, resins. The function of the cholesterol in such a process is to aid wetting of the pigment by the waxes, etc. and for this purpose 0.01 to one per cent is suggested.

COURTESY OF AMERICAN CHOLESTEROL PRODUCTS INC.

Cholesterol is also cited as a suitable material for addition in quantities up to five per cent to condensation products of phenolformaldehyde with the object of eliminating high pressure and temperatures employed in the manufacture of these products, and the elimination of "pores" is claimed.[14]

Cholesterol has been mentioned as a suitable emulsifying agent for emulsion polymerization of unsaturated organic compounds e.g. linseed oil, stand oil to linoxyn-like materials, or acrylic acid nitrile to a homogeneous fine grained powder.

Acetals of cholesterol usable as softeners, solvents, and for pharmaceutical purposes are produced by reacting a mixture of cholesterol, ethyl ether, vinyl ethyl ether and ethyl (a-chlor-ethyl) ether.[49]

It is of interest to consider in this section the resinous material obtainable from cholesterol, e.g. by polymerization. Tricholesterol is one of the products already known and is prepared by the action of activated floridin on cholesterol. The product has a melting range of 196-209° C. and is levorotatory, (a) 20/D = 40.8°. (Two per cent in carbon tetrachloride).

Its solubility characteristics are as follows, the figures indicating the number of grams dissolved in 100 mls. of solvent, saturated at 25° C.

Carbon tetrachloride	13.0
Chloroform	5.8
Benzene	3.4
Toluene	2.8
Ethyl Ether	0.46
Ethyl Acetate	0.04
Isobutyl Alcohol	0.03

A perfumed ball-point pen ink has been formulated[196] on the basic formula: water 4000-5000 parts weight, stearic acid 150, glycerol 50, triethanolamine 100, lanolin 100, tolu balsam 20, muscone 30, ambrette 50, patchouli 50, cholesterol 2, styrax gum 50, aniline dye 400, alcohol to 6000.

Textiles

Cholesterol-polyethylene glycol ethers obtained by reaction of cholesterol with ethylene oxide or preformed polyglycols are said to have special properties of importance to the textile industry for use as dispersing agents for organic and basic dyestuffs.

A process for waterproofing cellulose or cellulose derivatives containing wool or other textile materials, cites the use of aliphatic isocyanates and amongst the latter is mentioned cholesteryl-adipic acid ester isocyanate. Wool muslin is treated with this solution, followed by removal of solvent and exposed to a tem-

(Continued on page 432)

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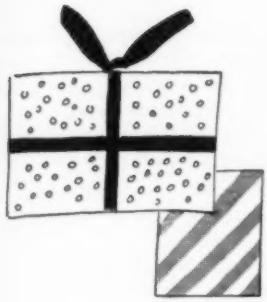


Packaging and Selling

Will Self-Service Selling in a Retail Store Hurt, or Help, National Advertising?

This is a question that is emerging after two or three years of joyous proclamations by many advertising agents that the elimination of personal selling at the retail counter would throw all of the burden of sales on consumer advertising. In the ecstasy of this discovery many leading lights in the advertising agency field prophesied in speeches and in print that we were entering a new period of retail marketing that would necessitate vast increases in advertising expenditures. At the time all of this seemed very logical and true even though it reminded us a little bit of the time twenty-five years ago when a few notables of the agency field at that time were persuading a few clients to discontinue their sales force and to spend this money as an additional advertising appropriation to create a consumer demand which would force the retailer to come to the manufacturer.

It is not so sure today by any means that advertising will take over all of the burden for sales out of the retail store. This does not mean that national advertising will not play a vitally important part in retail sales in self-service stores or that for many products and brands, it will not be an essential sales force needed for a favorable position in the store. But limitations to the single-minded hope for advertising are beginning to appear.

For instance, every survey made recently, and there have been many of them, show increasing skepticism of advertising by the public. This is particularly true in the very type of products most favored by the supermarket other than foods and it is particularly true today of television commercials. In addition to this scepticism, and the declining ability of advertising to convince people, it is also true that more and more the dollars must be spent to secure public attention. In advertising today we no longer speak of consumer demand—we are even more and more diluting the point-of-sale effectiveness of consumer acceptance. Today the big thing is impulse buying—that is, visible availability at the moment of the impulse.

Constant experience shows the importance in self-service selling of an unusual, or outstanding original, or effective package. Because of the easily-seen display, we know that because of impulse buying and an increasing inclination of the customer to shop and experiment, the successful package will often cut heavily into leading national brands. This is particularly true when this packaged product has some form of moderate local advertising support which gives it a degree of name recognition. In the self-service store the package can play a predominantly important competitive part as compared to its competitive value in the limited display visibility of the store where personal selling is used.

Another factor of potent local point-of-sale competitive value is the premium associated with the package or used at the point of sale. A good point-of-sales-premium, in self-service selling, can raise the merry devil with competitors and during the life of the premium may take over many sales, impulse or otherwise, that would normally have gone to the heavily advertised brands.

It is becoming a marketing axiom that in self-service selling display is the essential key, almost regardless of the amount of money spent for consumer advertising, or the length of time this consumer advertising has been invested or the wide degree of public recognition of the brand. It has been proved that a bad display, causing some small inconvenience to the consumer, such as in reaching or stooping, can practically wreck the sale of that brand. For the same reason, an excellent preferred display works wonders in the sale of a secondary product, providing of course it has a fine quality product and excellent package and some degree of consumer recognition or tempting premium to lure a sale.

Top retailers know all this very thoroughly. They know the full value of the shelf and store position which they control. They have seen many times what the unusual and striking package can accomplish in sales and in impulse buying. They see also the sale-producing effectiveness of the point of sale premium.

This means to the smart retailer that he can if he wishes, (1) start his own high-profit private label line with a tested package, preferred point of sale position,

premium at the point of sale and some local advertising or (2) support a local or sectional distributor who applies these same rules of sale in a self-service store or (3) continue to support the national advertiser and distributor who does not live in a dream world of consumer demand. This means, from the retailer's viewpoint, supporting the national distributor who is not thinking of his national advertising solely in terms of creating the kind of consumer demand that would force the retailer to come to the distributor's terms, but the kind of national distributor who knows full well both the value and the limits of his national advertising and who balances his marketing plans with the kind of in-store sales help as listed above.

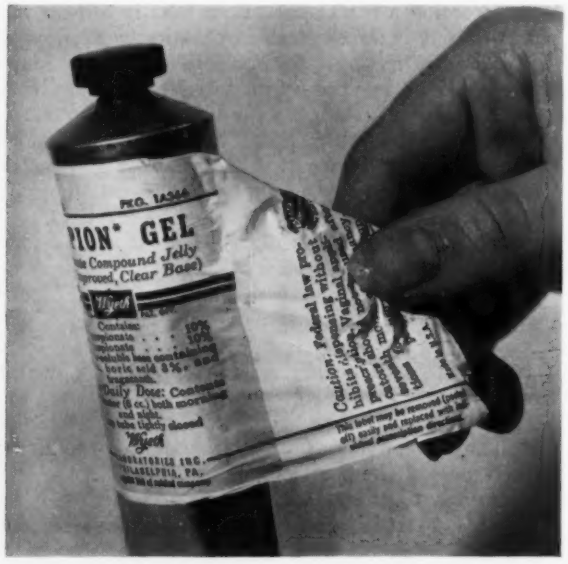
Trends

A trend of the times is shown by the planning for the new Alexander's Store in White Plains. For every square feet of selling space two square feet of parking space will be available.

Ready-Peel Labels

A. H. Wirz, Inc., tube manufacturers of Chester, Penna., have developed a new tube decoration process called Ready-Peel strippable lithography. This process makes it possible to manufacture attractive collapsible metal tubes with readily removable decoration. This process eliminates the expense of labeling tubes with separately printed labels prior to shipment to customers. In addition to providing an attractive tube that can be effectively merchandised as is, the Ready-Peel lithography can be easily removed from the tube and replaced with the druggist's or physician's individual prescription directions.

The Ready-Peel lithography, once removed from the tub, cannot be reused. This feature has been cited as an effective precaution against the unscrupulous reapplication of a highly reputable label to a substitute product, a possible danger when paper labels are used.



Future Fame

It has long been a comment among perfumers that during the last ten years, when nearly every perfume house has produced a new perfume and one hundred new brands have been introduced by all of the leading perfumers, no single odor has risen to fame such as the odors that are now the foundation of the leading perfume companies like Chanel, Guerlain, Evyan, Dana and other, including about twenty-five perfume companies.

Now it appears from an investigation in the retail trade, among buyers and salesgirls, that three new odors are beginning to emerge as possible famous names of the future. These odors are Ma Griffe by Carvan, Miss Dior by Christian Dior and Magee by Lancome.

The Quality of Retail Selling for Cosmetics

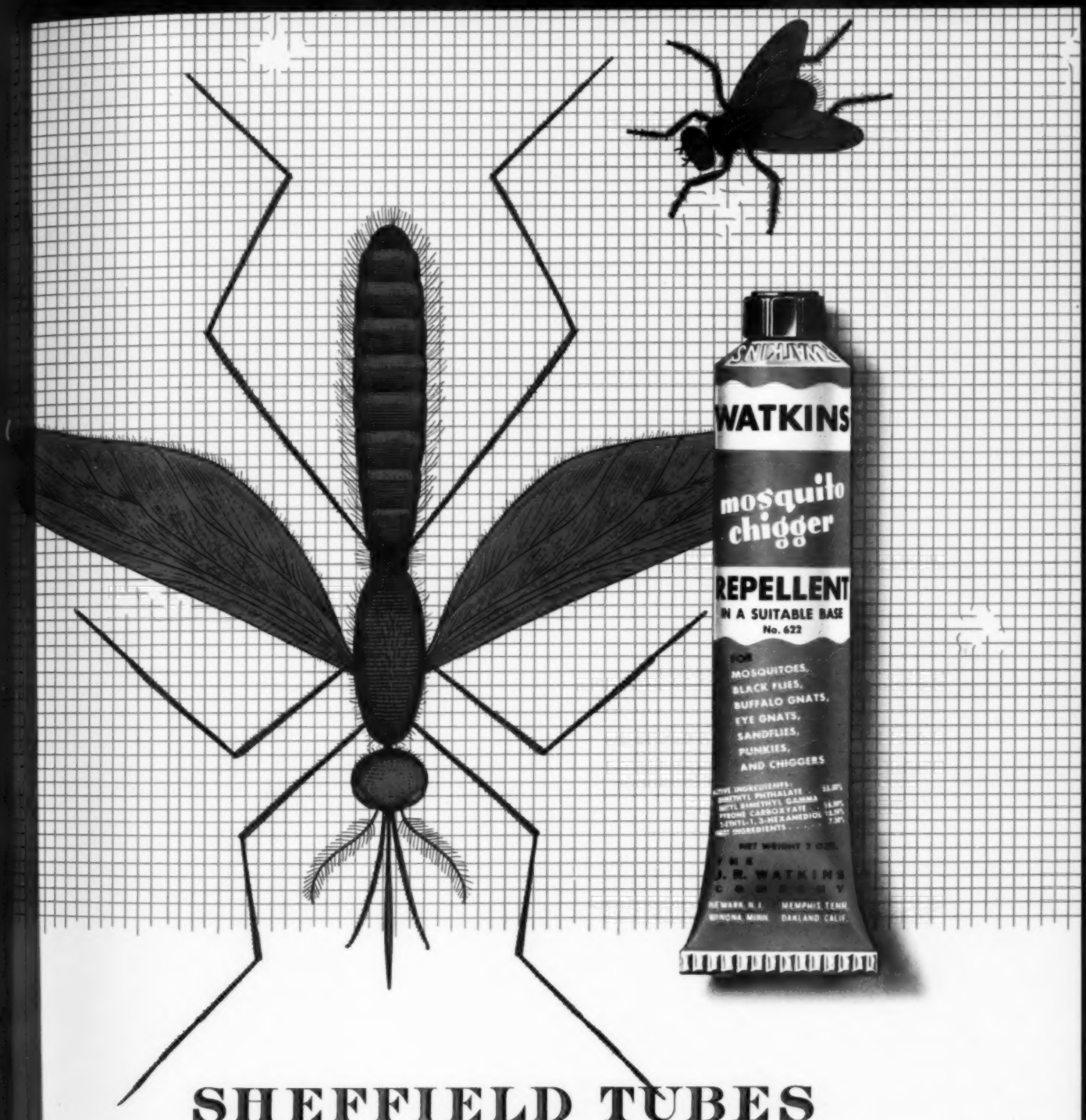
More than most other industries, the cosmetic industry is on the spot as regards personal selling. This is an industry that has traditionally been built on personal selling at the retail counter. Many millions of dollars have been spent, particularly by manufacturers, in training these retail salespeople. Over the years demonstrations and selling by approximately 14,000 full-time salesgirls in drug and department stores, plus a substantially larger number of house to house demonstrators, have been an enormous educational influence for the use of cosmetics and have been a very substantial factor in the steady year by year growth of this industry.

The rise of the grocery super-market and self-service have posed a serious problem for this industry and many cosmetic manufacturers of staple products have flooded over into the super-market so that today not only a large percentage of their business is done in these stores with self-service selling but there has been a consequent weakening in their sales position in the department store and the better class drugstore where personal selling runs supreme.

Because of this showdown between self-service and personal selling in the cosmetic business, there has been increasing criticism of the quality of personal selling in retail stores throughout the industry. Leading manufacturers have maintained their very efficient training school but beyond that the girls employed by the stores and largely sustained by P.M. payments have generally been considered as poorly qualified and a serious stumbling block in sales.

It does not look as if things are quite as bad as manufacturers and retailers have believed in regard to the quality of retail selling. In a recent study on "An Undeveloped Sales Potential" conducted by T. Dart Ellsworth and Evelyn Dawn Fraser for the Research Division of the New York University School of Retailing throws a more favorable light, at least compared with other departments, on the cosmetic salesgirl. Of the 512 sales-persons, surveyed in a group of stores in the six main floor departments, that is cosmetics, costume jewelry, gloves, handbags, hosiery and men's furnishings, the cosmetic salespeople come out pretty much ahead.

In personal appearance and good grooming, the cosmetic salesgirls rate a favorable 98 per cent as compared



SHEFFIELD TUBES

first choice of the famous J. R. WATKINS CO.

Man's war on insect pests is virtually eternal... but it's adios to mosquitoes and jiggers to chiggers when Watkins' effective insect-repellent takes over! *Sheffield Process* collapsible tubes have been Watkins' choice for plus packaging of this item as well as Watkins' Lather and Brushless Shaving Creams, and Watkins' Toothpaste. Sheffield's association with this famous American company began before the turn of the century and has extended through wars, depressions, and good times alike. It suggests the wisdom of procuring collapsible tubes from Sheffield, where service is not merely a slogan but is based on expert counsel, quick action, and detailed follow-through. For superior tubes and tube-manufacturing know-how from A to Z, try Sheffield Tube on *your* next order.

THE SHEFFIELD TUBE CORPORATION

Factory and Home Office: New London, Connecticut • Sales Offices: New York - Chicago - Los Angeles

Today's Modern Sampler

Cross Swing Sifter Sampler

So good for sales! So easy to fill!

In the face of current selling conditions, distribution of product samples is rapidly becoming a necessity. And these Cross round miniatures provide the modern answer for the perfect sampling container.

Dressed as an exact replica of your full size container, patented Cross Swing Sifter Samplers are sure-fire for sampling all sorts of powders such as cosmetics, food, drugs, pharmaceuticals and anything else that can be dispensed through a shaker or a sifter.

LOW COST FILLING

Almost any standard filling equipment can be used to fill Cross Samplers. Just fill the inner section, and then slip the outer part over it. Then a simple twist of the top, and your product flows freely.

Ask for a representative to show you samples and discuss your problems.

CROSS PAPER PRODUCTS CORP.

4377 Bronx Boulevard New York 66, New York

DESIGNERS • CREATORS • MANUFACTURERS OF INDIVIDUALIZED ROUND AND OVAL PACKAGES

to the next best of 88 per cent for costume jewelry. While the girls in this department are prone to what is called the most common distraction, that is, 100 per cent of them talk with other salespeople as compared to 68 per cent for all departments, at least they are completely free from another bad habit that infects each of the other departments, that is, chewing gum.

The cosmetic salesgirls do pretty well in recognizing the presence of a customer. Seventy-seven per cent get a favorable report in this respect as compared to 92 per cent for costume jewelry, 56 per cent for gloves and 60 per cent for handbags.

Ninety-three per cent of the cosmetic salesgirls were neatly dressed as compared to an average of all departments of 90 per cent.

Salesgirls in all departments rank fairly high in the absence of distracting habits. Here the cosmetic salesgirls again were tops with 91 per cent having no distracting habits as compared to 75 per cent for costume jewelry, 72 per cent for gloves and an average of 82 per cent for all departments.

Cosmetic salesgirls were pretty good in approaching customers promptly. Sixty per cent of these girls were reported to have a prompt approach as compared to 61 per cent for jewelry, 69 per cent for gloves and 61 per cent for handbags. The cosmetics department however rates tops in customer courtesy having a report of 93 per cent in this respect, well ahead of any other department. This same leadership of the girls in the cosmetic department was found also to exist in maintaining a pleasant attitude toward customers during the transaction and in familiarity with the location of wanted merchandise.

Very few salespeople were found to discuss the uses of merchandise with the customer. In this respect cosmetic salesgirls lead other departments but even here only 52 per cent were reported effective in this respect. This was true also in salespeople's interest in the customer's merchandise problem where the cosmetic salesgirls rate tops but only 45 were given a favorable report. In showing an adequate assortment of merchandise the cosmetic department fell down a little by rating only 53 per cent. Again using suggestion selling only 40 per cent of the salespeople in the cosmetic department used this potent sales tool.

Gains and Losses in Cosmetics

Although the sale of cosmetics and toilet preparations has shown a gain in each one of the last ten years and although the total sales of these products has shown a huge growth, it is becoming clearer every day that some of the basic cosmetic products are losing ground, in consumer usage.

Many people in the trade are particularly concerned with the suspicion that facial treatment, or the cosmetics for facial treatment, have been losing ground, perhaps more than any other product.

The suspicion that this loss of ground is taking place in cosmetics that have held a firm place for many generations is being borne out in numerous magazine surveys and newspaper panels. Each of these surveys that include a comparison of consumer usage over a period of years confirm this decline in usage.

The cosmetic industry has been fortunate in having several products of dynamic growth such as deodorants, shampoos and the home permanent wave. They have tended to obscure the growing loss to the industry of other products.

So far as we know, there has been no market research aimed at discovering the consumer motivation in turning away from products which have held a firm place for many, many years.

The most recent survey which gives some indication of the rise and fall of cosmetic products in consumer preference is the Fawcett Women's Group, Thirteenth Annual Beauty Reader Forum which shows ten year trends. Below are the results of this survey which shows the various number of women in this Forum using a wide list of cosmetics with comparative usage in 1943 as compared to 1948.

	1943	1954
Anti-Perspirant and Deodorant	93 per cent	98 per cent
Astringent, Facial Freshner, Liquid Cleanser	43	40
Bath or Talcum Powder	83	78
Bath Salts and Water Softeners	31	17
Brilliantine, Hair Lacquer, Hair Dressing	20	31
Bubble Bath	26	24
Cleansing Tissues	92	88
Cologne and Toilet Water	81	76
Cologne, Stick	*	46
Cream for Cleansing	70	55
Cream for Powder Base	35	21
Cream for Softening or Lubricating	45	43
Cuticle Remover	48	32
Dentifrices	98	99
Deodorant and Anti-Perspirant	93	98
Depilatories	18	11
Eyebrow Pencil	39	49
Eye Lotion	36	22
Eye Shadow	15	16
Face Powder	95	83
Facial Mask and Stimulating Cream	19	15
Facial Freshner and Astringent	43	40
Hair Lacquer, Dressing, Brilliantine	20	31
Hair Rinses	28	34
Hair Tonics and Corrective Preparations	33	32
Hand Cream	38	44
Hand Lotion	85	81
Lipstick	99	99
Liquid Dentifrice	7	1
Make-up Base	72	62
Mascara	54	51
Mouth Wash	58	45
Nail Polish	97	91
Nail Polish Base Coat	34	30
Nail Polish Remover	97	93
Nail Polish Top Coat	38	28
Perfume	67	63
Permanent Waves (Home)		48
Permanent Waves (Professional)	75	31
Rouge	79	50
Sachet	*	32
Shampoo	96	99
Soap for Face	97	97
Stimulating Cream and Facial Mask	19	15
Talcum or Bath Powder	83	78
Toilet Water and Cologne	81	76
Tooth Paste	51	90
Tooth Powder	45	11
Water Softeners and Bath Salts	31	17

*No Data Available

More About Market Research

We commented a while ago about the manufacturer who said he believed in market research but that he had yet to meet a family which consisted of 3-5/8ths people and that he had never yet been in a home which con-

Minimum tightness of a cap is essential to avoid evaporation or leakage, whereas excessive tightness may make a closure difficult to remove. This spring torque tester tells how to adjust capping machines for the right amount of twist pressure for good sealing and easy removal.

Making closures that know how to sell your products

Blending function with sales appeal makes sales-minded closures—

SCIENTISTS, engineers, designers and marketing men are constantly working for you at the Duraglas Center—the world's largest glass container research laboratory. Here are some of the ways they determine the closure that's exactly right for your product...

How good is our tin plate? This instrument finds out. It measures the depth of draw of a specimen plate while another dial records amount of pressure it takes to rupture the plate.

Helping your package sell itself is the job of our engineer-artists. For example, food package designs convey cleanliness, while liquor salespackages suggest dignity and antiquity.

To study sealing problems we built this intricate instrument for detailed measurement of cap and glass finish dimensions. Cap or glass contours can be traced with a magnification of 25 to 1.

BEFORE:

On the left, an uninspired closure is the reason why this package is missing a golden opportunity to catch *extra* impulse sales.

AFTER:

On the right, now it's ready for self-selling! Bright, colorful closure-label combination makes this an outstanding, attention-getting sales-package.

PRECISION CLOSURES
AN (I) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

sisted of 5-1/4th rooms. Now we have just heard about the man who said that he had heard that somebody had drowned crossing a river with an average depth of two feet.

New Lip Application

The Lip Mate Corporation, 6718 Santa Monica Boulevard, Hollywood, is introducing a new lipstick which according to its claim, will be as revolutionary as the ball point pen. This is a lipstick which allows the lipstick material to flow through a sable brush by simply twisting one end. Hal K. Riel is the company president.

Where the Money Is

A leading apparel manufacturer recently urged retailers to put their heaviest advertising pressure on the upper one-fourth of their market. This one-fourth of the market, he stated, controls eight per cent of the consumer buying power. On the other hand, he stated that so far as fashion goes, the two-fifths of the population, comprising the lowest part of our economic class, buys only 14 per cent of the total fashion apparel output.

This upper one-fourth of the market which buys 80 per cent of the fashion apparel is precisely the market that the so-called "class or prestige perfume manufacturers" have always aimed their salesmanship at and they have given very selective retail distribution and their franchises to the type of retail store which controls this population and yet we hear a growing criticism inspired by the lovers of the grocery store about this kind of marketing.

Better and Better in Every Way

Since this industry spends many millions of dollars in advertising in the women's service magazines, it is of interest to realize what the famous English publication, "The Economist," thinks of women's magazines. Said this learned and influential British publication, "The counsels of these periodicals are making marriage smoother, homes brighter, food better and clothes smarter." At a time when so much is heard about the weakness of the press, even Mr. Randolph Churchill would surely agree that the women's magazines, at least, are on the side of the angels.

So after all, American advertising is accomplishing a great deal of good by helping keep these magazines alive.

Total Cosmetic Market

The World Almanac for 1954 gives the total female population between the ages of 14 and 70 as 49 million women. This, we may safely assume, is the maximum cosmetic market. Isn't it too bad that we have no really authentic figures for any kind of cosmetics which would give a clear market picture as to what percentage of these women use any one cosmetic and how often they use it?

Creams Have Been the Keystone

There was quite a bit of discussion in the industry regarding the cosmetic trends of a number of recent surveys. The cosmetic creams are declining, both in the percentage of women using creams and in the frequency of use.

This would be an interesting subject for investigation if true, because more than any other cosmetic product the cream has been the source of heavy advertising, the heart of glamour and particularly the chief source of consumer education through the paid demonstrator for manufacturers.

Grocery Store Purchases

The continuing survey of Minnesota Living conducted by the Minneapolis Star and Tribune has just been released. Its first report is of interest to this industry, particularly the percentage of drugs and cosmetics purchased in grocery stores in both the entire state and in Hennepin County. This full survey includes the brand preference of leading cosmetic products.

"Do you buy ANY toilet articles or cosmetics in GROCERY stores?" (yes)

ARTICLES PURCHASED

"What KINDS of toilet articles or cosmetics do you buy there?"

(Figures represent proportion of ALL WOMEN interviewed, not just those who buy such articles in grocery stores.)

	Minnesota (Entire State)	Hennepin County	Rest of State
	41.8 per cent	34.1 per cent	44.2 per cent
Tooth paste, powder	22.9 per cent	18.6 per cent	24.2 per cent
Shampoo	18.3	15.4	19.2
Lotions, creams (Hand, skin, face, etc.)	13.0	10.4	13.9
Toilet soap	8.3	4.4	9.5
Deodorant	5.5	5.4	5.5
First aid supplies	3.6	2.3	4.0
Hair oil, tonic	3.3	1.5	3.8
Face, talcum powder	3.3	1.5	3.8
Razor blades	2.6	1.3	3.0
Home permanents, wave set	2.5	2.0	2.7
Shaving cream	2.3	2.0	2.3
Baby oil, powder	2.2	1.7	2.3
Bobby pins	1.7	2.0	1.7
Facial tissue	1.5	.8	1.7
Lipstick, rouge	.8	.3	1.0
Other articles	3.6	1.8	4.2
Don't remember, or uncertain	.3	.2	.3
	95.7 per cent	71.6 per cent	103.1 per cent

Our tailor-made package service will fit your needs *beautifully*

We know, as you do, that proprietary products usually have a life of weeks or months in the home. That is why we go to no end of trouble to make containers that will *keep* their welcome. Thanks to first-rate lithography, our cans for toiletries and powders look as well in the bathroom cabinet or boudoir as they do in the store. Moreover, our cans give continuing protection and are easy to use. Call Continental now for an intelligent discussion of your problems. Let us show you how we can adapt our Tailor-Made Services—packages, lithography, delivery, engineering and research—to fit your needs *beautifully.*

CONTINENTAL CAN COMPANY

Continental Can Building • 100 East 42nd Street, New York 17, N. Y.

EASTERN DIVISION: 100 East 42nd Street, New York 17
CENTRAL DIVISION: 135 South La Salle Street, Chicago 3
PACIFIC DIVISION: Russ Building, San Francisco 4

Burroughs Wellcome is distributing Zinofax brand Cream, an exceptionally smooth cream with 15 per cent zinc oxide in an emollient base containing lanolin, which soothes and promotes healing of damaged skin and mucous surfaces.

Nion Corp., 1001 North McCadden Place, Los Angeles, has prepared Nio-Piracene for the treatment of motion sickness. It is reported to be 92 per cent effective in extensive clinical trials.

Parke, Davis & Company is distributing Sytobex, a parenteral preparation of crystalline B_{12}, for the treatment of pernicious anemia, nutritional macrocytic anemia, tropical and non-tropical sprue and megaloblastic anemia of infancy. It is especially indicated in those patients who are sensitive to liver extract.

Lip-Mate Corp., 6718 Santa Monica Blvd., Hollywood, has introduced a new-type lipstick with a different design in which the lipstick is applied with a brush. The compact, attractive unit allows lipstick to flow through a sable brush by twisting one end. It comes in six different shades and sells for $2.50. Refills are available for 75 cents.

Ayerst Laboratories has released Mediatric Liquid, a steroid nutritional compound for use in preventive geriatrics. The product provides estrogens and androgens in small doses, nutritional factors, and a mild antidepressant to impart a gentle emotional uplift.

Jean Patou has introduced a half-ounce size for the first time for three Patou perfumes—Moment Supreme, Amour Amour and Cocktail Dry. The new size will appear in April in a deluxe presentation, making it ideal for gift giving and a timely promotional feature for Easter, Mother's Day and other occasions.

Upjohn is providing a new ointment for treating skin ailments. It is called Neo-Cortef and is a bland, non-irritating ointment containing hydrocortisone acetate and neomycin sulfate.

Lederle has developed a new form of Aureomycin chlortetracycline that can be administered orally to small animals and to calves. Called Aureomycin Calcium Oral Drops, the product has proven itself to be highly effective in the treatment of calf scours and calf pneumonia in animals less than four weeks old.

Lederle has also announced the production of Duovax Erysipelas Bacterin for the prevention of erysipelas in swine and turkeys.

Copper Tan, Inc. has changed its product name to Desert Tan. Hereafter, Desert Tan sun tan products will be marketed by Desert Tan Co.

Richard Hudnut has introduced two new colognes with R.S.V.P. fragrance. They are called R.S.V.P. Lotion Cologne, a flowing cream cologne, softening and non-sticky, and R.S.V.P. Cascade, a clear sparkling cologne for quick refreshment.

Warner-Chilcott Laboratories is distributing Parsidol, a drug for the treatment of Parkinson's disease. The product has been found effective in relieving all symptoms of the disease, particularly in mild cases. It is especially useful in controlling rigidity.

Organon has introduced Pernaemon for the treatment of pernicious anemia and other conditions requiring injectable liver. It is said to be the first new parenteral U.S.P. liver since the origination of liver therapy.

Wyeth Laboratories is offering a troche containing three antibiotics. These Wybiotic troches containing zinc bacitracin, neomycin and polymyxin B, are for the treatment of a wide range of mouth and throat infections, including tonsillitis, laryngitis, pharyngitis and other infections.

Pfizer Laboratories has developed Cortril with Terramycin, the first drug combining the broad-spectrum antibiotic, Terramycin, with the adrenal cortical hormone, hydrocortisone. It is being used for the control of inflammations and inflammatory diseases such as pink eye.

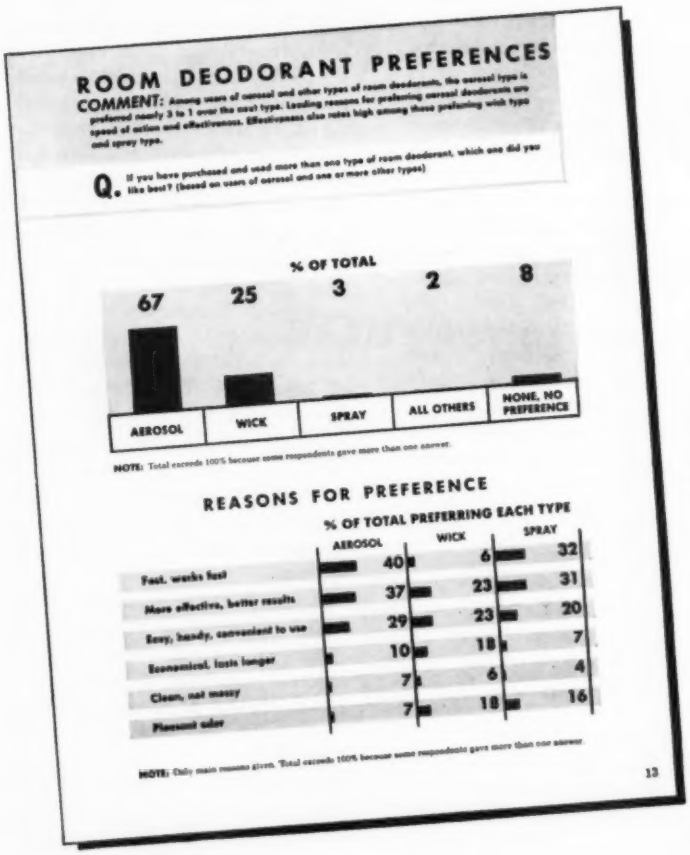
Schieffelin & Co. is now offering CRP-Antiserum, said to be the most sensitive indicator yet developed, for determining the presence and degree of many inflammatory bacterial infections.

J. B. Roerig Co. is marketing Vivalt brand of crystalline vitamin B_{12} for parenteral use and Thiamine hydrochloride parenteral, as the first in an expanded line of vitamin products. Both products will be sold in multiple-dose vials.

Abbott has two new products: Elixir Gerix, a pleasant, wine-flavored appetite stimulant and nutritional supplement especially useful in aiding appetite failures resulting from the inactivity of old age and the languor of convalescence; and "Rejectal improved with Vitamin C in Univial." The Univial is a sterile vial with two compartments, each containing part of the ingredients which include six injectable vitamins plus ascorbic acid.

Latest Du Pont Aerosol

A study of CONSUMER KNOWLEDGE, USE AND OPINION OF AEROSOL-PACKAGED PRODUCTS



Room deodorant preferences. As shown in the graph above—reproduced from the Survey Digest—among users of aerosols *and* other types of room deodorants, the aerosol type is preferred nearly 3 to 1 over the next type. Consumers appreciate the speed, effectiveness and convenience of aerosol-packed products.

Points up Growing Popularity of Pressure-Packaged Products

9 out of 10 families have used one or more aerosol products

Purchase of aerosols continues to show steady increase. It has nearly doubled since 1950. As shown in "The Aerosol Market"—a digest of the latest Du Pont nation-wide study of the market for aerosols—87% replying (of the 2600 families) had purchased at least one aerosol product. In 1950, only 47% reported having purchased aerosols.

7 out of 10 families were completely satisfied with aerosol method

The survey also showed that among housewives who stated that they had used aerosol products, 70% reported complete satisfaction with this modern method of dispensing. Only 2% expressed disappointment with the aerosol they had purchased . . . indicating a very high degree of satisfaction.

Simplicity and ease of using . . . effective results . . . and cleanliness were given as the three leading reasons for being satisfied with the aerosol products.

IT'S FREE!

Market Survey

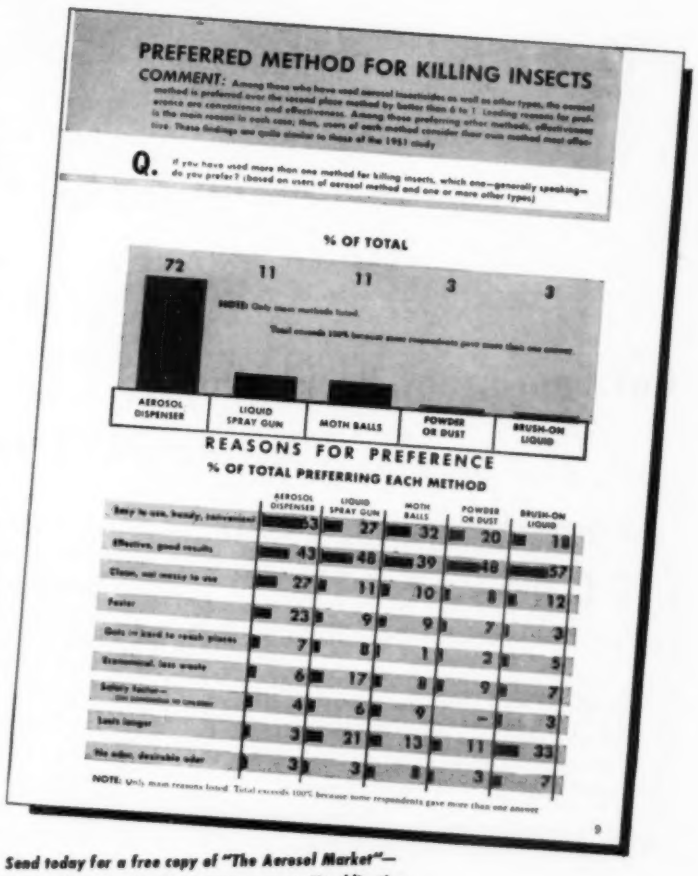
Effectiveness of Aerosol Products One Big Reason for Their Popularity

Aerosol insecticides preferred better than 6 to 1

Those who reported having used both aerosol insecticides and other types, overwhelmingly indicated their preference for aerosol dispensers (as shown in the page reproduced at the right). Again, convenience of use and effectiveness were given as main reasons for being satisfied with the product.

Majority of aerosols packed with "FREON" propellents

Du Pont "Freon"* fluorinated hydrocarbon propellents are used in the majority of aerosols now on the market . . . and there's good reason why. Their versatility as regards pressure and solubility properties makes them adaptable to all types of aerosol products. In addition, they are safe . . . nonflammable, nonexplosive, virtually nontoxic and noncorrosive. If you are thinking in terms of entering this market with a product of your own . . . consult Du Pont for technical help in formulating it with one of of the 25 "Freon" propellent solutions now available.


PREFERRED METHOD FOR KILLING INSECTS

COMMENT: Among those who have used aerosol insecticides as well as other types, the aerosol method is preferred over the second place method by better than 6 to 1. Leading reasons for preference are convenience and effectiveness. Among those preferring other methods, effectiveness is the main reason in each case; that, users of each method consider their own method most effective. These findings are quite similar to those of the 1951 study.

Q. If you have used more than one method for killing insects, which one—generally speaking—do you prefer? (based on users of aerosol method and one or more other types)

% OF TOTAL

AEROSOL DISPENSER	LIQUID SPRAY GUN	MOTH BALLS	POWDER OR DUST	BRUSH-ON LIQUID
72	11	11	3	3

NOTE: Only three methods listed.

REASONS FOR PREFERENCE

% OF TOTAL PREFERRING EACH METHOD

	AEROSOL DISPENSER	LIQUID SPRAY GUN	MOTH BALLS	POWDER OR DUST	BRUSH-ON LIQUID
Easy to use, handy, convenient	53	27	32	20	18
Effective, good results	43	48	39	48	57
Clean, not messy to use	27	11	10	8	12
Faster	23	9	9	7	3
Gets in hard to reach places	7	8	1	2	5
Economical, less waste	6	17	8	9	7
Safety factor—no ammonia or cresote	4	6	9	–	3
Lasts longer	3	21	13	11	33
No odor, desirable odor	3	3	8	3	7

NOTE: Only main reasons listed. Total exceeds 100% because some respondents gave more than one answer.

9

KINETIC

FREON

REG. U.S. PAT. OFF.

SAFE PROPELLENTS

*"*Freon*" *is Du Pont's registered trade-mark for its fluorinated hydrocarbon propellents.*

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Send today for a free copy of "The Aerosol Market"—digest of Du Pont's 1953 consumer survey. No obligation.

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E. I. du Pont de Nemours & Co. (Inc.)
"Kinetic" Chemicals Division, Dept. D.
11496 Nemours Building
Wilmington 98, Delaware

Please send a free copy of "The Aerosol Market" digest.

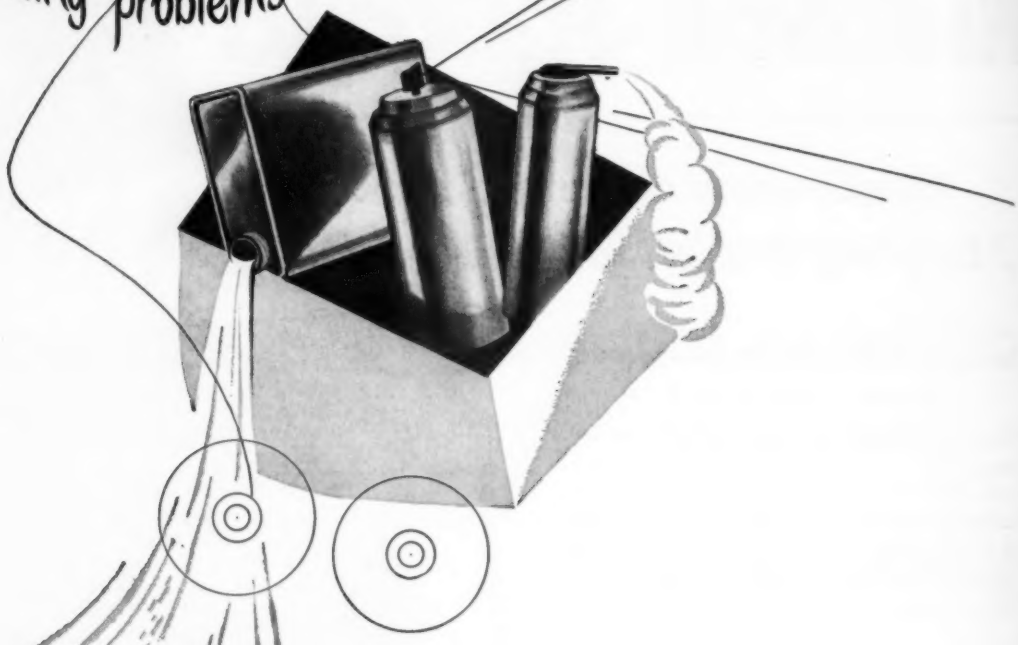
Name_____

Company_____

Street_____

City_____ Zone____ State_____

Your filling problems are "our babies" too



Get Fool-proof Packaging . . .
plus CONTINENTAL'S Famous "Follow-Through"

Noted for Aerosol Packaging . . .

CONTINENTAL

saves you money on *LIQUID FILLING*, too

A pioneer in aerosol dispensers, Continental is often associated with that type of packaging alone. We appreciate the reputation, but wish to correct the emphasis. Our expanded capacity includes the finest filling equipment . . . geared to handle any size order . . . for *liquid*, as well as spray and foam packaging. The same savings from shipping to us in bulk, while we ship your finished product, accrue to you. For costs on straight liquid or "squeeze-bottle" filling, outline your needs in a letter.

You'll like Continental's methods. Beginning with exhaustive chemical analysis of your product formula, we carry on with fast, efficient production accompanied by rigid quality control. Finally, we always stress our Midwest locations and shipping "follow-through." Continental's extensive warehouse space enables you to use our two plants as national distribution points. We handle shipping and paper work. Your orders are ready when you want them. And the savings on freight and reduced average damage are considerable, especially if you package in glass. Since Continental specializes in all types of filling . . . liquid, pressurized, and aerosol in glass or cans . . . combination shipments are routine. You get one bill of lading, one invoice, etc. Accounting is simplified. Shipments don't get snarled up. Dealers get their goods on time. All this . . . and more besides . . . is yours from Continental. Send us y(our) problem today.

CONTRACT AND CUSTOM FILLING

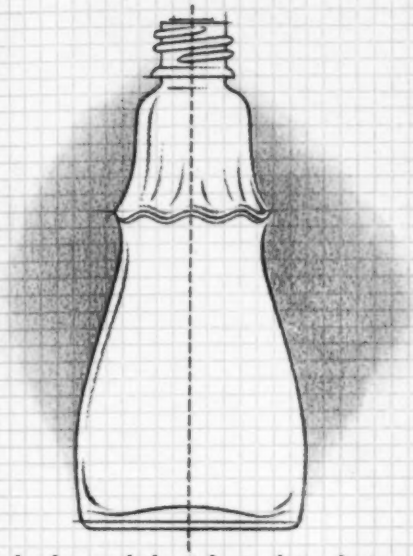
LIQUID *SPRAY* *FOAM*

MAIN OFFICE • 123 NORTH HAZEL STREET, DANVILLE, ILLINOIS

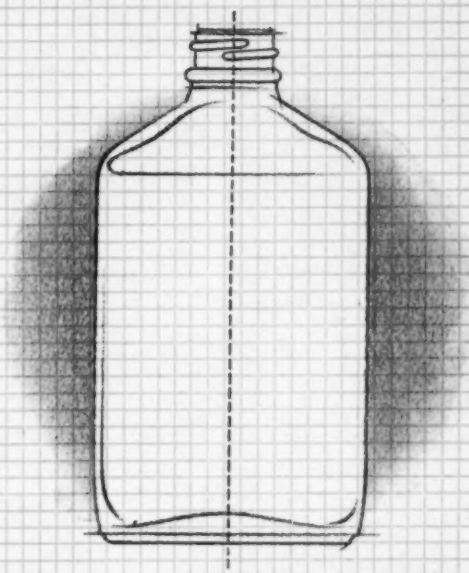
CONTINENTAL FILLING CORPORATION

PLANTS • DANVILLE, ILLINOIS — HOBART, INDIANA

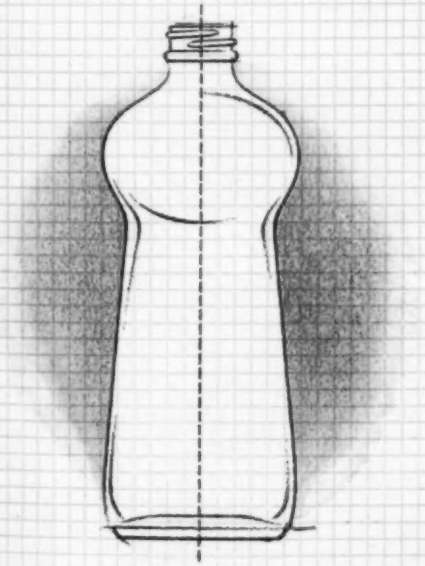
How is a glass Salespackage born?



It may be born of the talent of its designer to picture the virtues of a product by the grace and beauty of its container.



It may be born from necessary emphasis on the protection of its contents from every outside influence.



It may be born because a special convenience to the user is needed to insure satisfactory performance under difficult circumstances.

That successful glass SALESpackages are so consistently developed by Owens-Illinois is no accident.

It is the result of systematic research into the problems to be solved and the objectives to be reached in the creation of each Duraglas® SALESpackage by specialists in design, engineering and marketing.

The best answer to your packaging problem may come from a single factor in the birth of a new Duraglas Container but is more likely to evolve from a combination of many skills. Ask us to demonstrate how Owens-Illinois' abilities can be focused on your problem . . . container, closure, label or carton.

DURAGLAS CONTAINERS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

KING SIZE
1 ounce capacity
PURSE SIZE
½ ounce capacity
Your Stick Deodorants...
Facial and Hand Creams...
Solid Cologne... Stick Perfumes...
After Shave Lotions...
CALUMET
Swivelpak®
NO MOULDING REQUIRED . . . PRODUCT CAN BE POURED DIRECTLY INTO CONTAINER
. . . ELIMINATES NECESSITY FOR COSTLY FOIL WRAPPING AND MESSY HANDLING.

CALUMET *Manufacturing Co., Inc.*

565 FIFTH AVENUE, NEW YORK 17, NEW YORK, MURRAY HILL 8-4270

PLANTS: NEW YORK CITY, BLOOMFIELD, N. J

IN CANADA: CALUMET DIVISION OF ERIC H. HARDMAN, LTD. 137 WELLINGTON ST., WEST, TORONTO, CANADA *PAT. PEND.

Beauty on paper

As the Cosmetic Industry has helped set new standards of loveliness for American women, so Oxford Papers have helped this industry achieve new freshness and appeal in its printed material.

In the form of labels, wraps, folders and other promotional pieces, Oxford Papers accurately capture every detail of color and line. Wherever beauty is a business, Oxford grades have proven fit foundation for packages and pages that sell . . . *prove it for yourself.*

Oxford Papers

Help Build Sales

OXFORD PAPER COMPANY, *230 Park Avenue, New York 17, N. Y.* • OXFORD MIAMI PAPER COMPANY, *35 East Wacker Drive, Chicago 1, Ill.*
Mills at Rumford, Maine, and West Carrollton, Ohio

an important part of any beauty picture

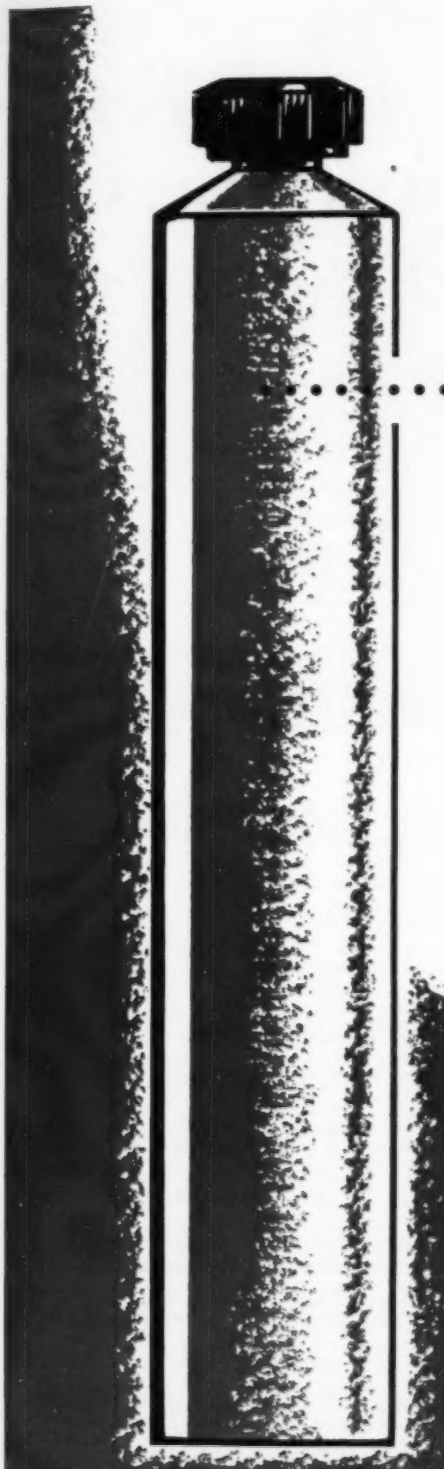
HAZEL-ATLAS GLASS COMPANY
WHEELING, WEST VIRGINIA

Notice how the H-A Cosmeticware blends in with your beauty picture. That's one of its selling charms.

It becomes part of every dressing table.

But here's the most important feature... on dealers' shelves these handsome jars and bottles sell for them, and for you!

H-A Cosmeticware must be part of your beauty picture.



COLLAPSIBLE TUBES

CAN SPOUTS
SPRINKLER TOPS
APPLICATOR PIPES

•

PLAIN OR DECORATED
for creams, toothpastes,
ointments, cements, oil colors,
greases, liquids, powders, etc.

ART TUBE CO., INC.

500 LYONS AVE., IRVINGTON 11, N. J.
Telephone . . . . . WAverly 3-6400

· TIN · TINCOATED · LEAD · ALUMINUM ·

#1

Non-rolling, extra-depth, Bakelite cap; thick-flange rubber bulb; Saftee-ball glass.

#3

Regular plastic cap; thin flange rubber bulb; semi-blunt glass.

#4

Metal cap; oil-resistant Amekine synthetic rubber bulb; blunt glass.

New Modernistic bottle. Designed to lie flat for convenient labeling. Oval front provides ample label space.

New Perfection

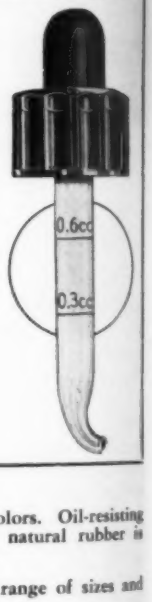
DROPPING PARTS

Simplify Your Packaging Problem

The wide variety of sizes, styles and colors in New Perfection's complete line of dropping parts offers the answer to your packaging problem. Each component part is designed to present and administer your product in the most attractive, convenient manner. We supply dropping parts to fit your bottles or furnish the complete unit.

DROPPER GLASSES CAN BE CALIBRATED IN COLOR

An inexpensive extra that adds great convenience to the use of your preparation. The dosage you desire in the color you specify is accurately and permanently printed on the dropper glass. Trade-marks and firm names can also be imprinted.



#2

Non-rolling, extra-depth Bakelite cap; thick-flange rubber bulb; special bent glass, plain or CALIBRATED.

RUBBER BULBS are supplied in many styles and colors. Oil-resisting AMEKINE synthetic rubber is used for oil preparations; natural rubber is supplied for other products.

CAPS of plastic or metal can be furnished in a complete range of sizes and colors.

DROPPER GLASSES are available in a wide variety of styles and sizes; plain or CALIBRATED in any color to mark specific dosages.

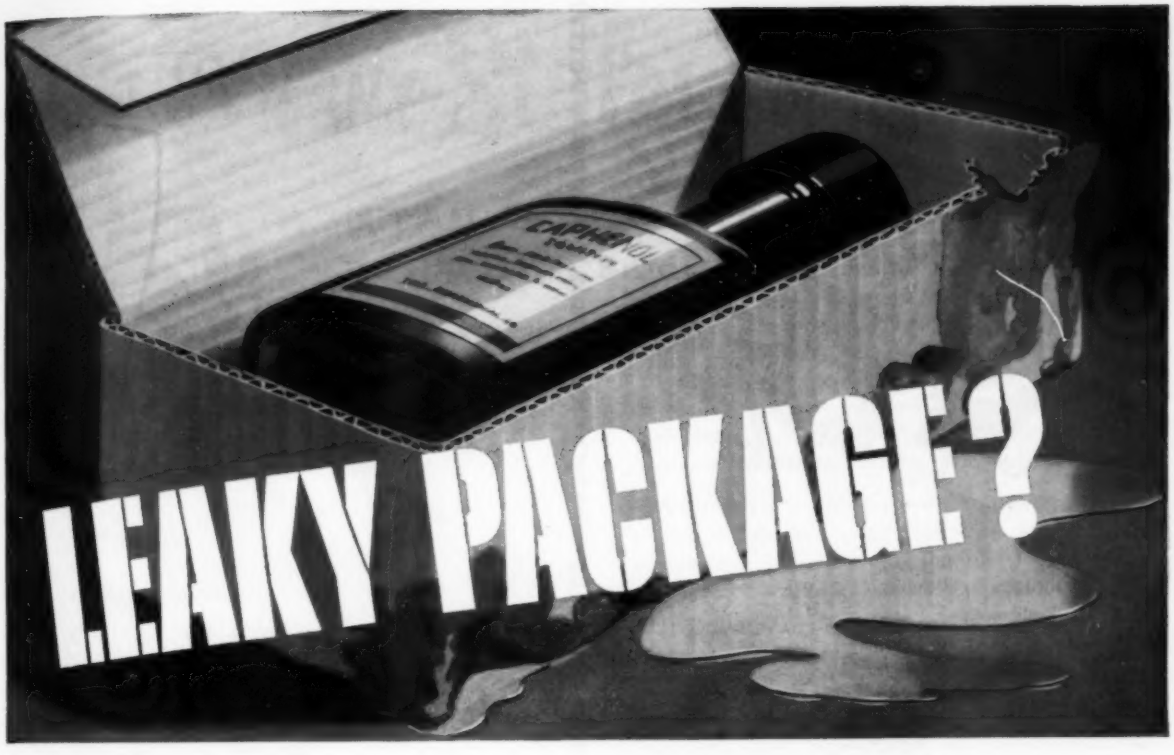
BOTTLES in an attractive modernistic style in Amber, Blue, Green or Clear glass are available, with dropping parts, in the following sizes: 2 cc, ⅛, ¼, ½, 1 and 2 oz.

Write for Samples and Quotations

PENNSYLVANIA GLASS PRODUCTS CO. INC.

"Glass Goods of the Better Kind"

430 N. CRAIG ST. • PITTSBURGH (13), PA., U.S.A.



Not when you use KIMPAK* 301!

New KIMPAK 301 will end the costly damage caused by leakage in pharmaceutical shipments. With its ability to absorb up to 16 times its own weight of liquids in a matter of seconds, new KIMPAK 301 eliminates the risk of leakage, due to broken containers or faulty closure, that can spoil an entire pharmaceutical shipment. And it fully meets postal regulations requiring an absorbent cushioning in Parcel Post shipments of liquids. KIMPAK 301 costs no more than ordinary materials.

1. Kimpak is a soft, smooth creped wadding, uniform in thickness to provide equal protection around the entire bottle, jar or tube.

2. Kimpak is an absorbent material of unusual capacity. It will absorb at least 16 times its own weight in liquids, affording complete protection in compliance with Parcel Post regulations.

3. Kimpak has a fast rate of absorbency . . . up to its full capacity within 30 seconds, *before* the rest of the shipment is damaged.

Leakage is but *one* of the problems encountered in pharmaceutical packaging. Specify KIMPAK (either 201 decorative white or the new low-cost utility 301) and these problems are solved. For more details, contact the KIMPAK distributor in your area, or mail the coupon below.

SPECIFY KIMPAK 301 TO SOLVE THESE INTERIOR PACKAGING PROBLEMS:

- Leakage
- Breakage
- Conformability
- Ease of handling
- Appearance
- Cleanliness

Whatever your protective interior packaging requirements, there is a Kimpak specification that does the job... better!

KIMPAK INTERIOR PACKAGING
*T. M. REG. U. S. & FOREIGN COUNTRIES

A Product of **Kimberly-Clark**

KIMBERLY-CLARK CORPORATION Dept. DC-34
Neenah, Wisconsin

We would like to learn how KIMPAK can provide better protection for our products. Please send complete information.

Name .....

Firm .....

Street Address .....

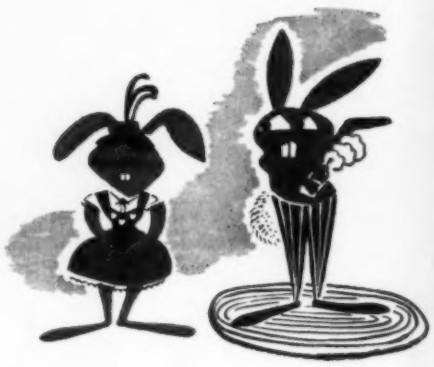
City ..... *Zone* ..... *State* .....

IMPULSE APPEAL

Vibrant color . . . the sensory appeal of warm lightness . . . the promise of convenience . . .
THAT'S THE PLAXPAK® BOTTLE.

PLAX

USE APPEAL



The infinite ease of a one-hand squeeze . . . the perfect safety of unbreakability . . .
THAT'S THE PLAXPAK BOTTLE.

PLAX

PLAXPAK BOTTLES • PLAXPAK BOTTLES • PLAXPAK BOTTLES • PLAXPAK BOTTLES • PLAXPAK BOTTLES • PLAXPAK BOTTLES

REPEAT APPEAL

A magnet at the point-of-purchase . . . an aid to your product at the point-of-use . . . it sells, then resells . . .
THAT'S THE PLAXPAK BOTTLE.

PLAX

The Plaxpak polyethylene bottle is packed with merchandising magic. And Plax alone has the experience to exploit this magic to its fullest in behalf of your product. Our packaging staff is at your service —
For packaging that sells at the point-of-sale and resells at the point-of-use.

PLAX CORPORATION

PLAX

WEST HARTFORD, CONNECTICUT

Plax Canada, Ltd., Montreal and Toronto

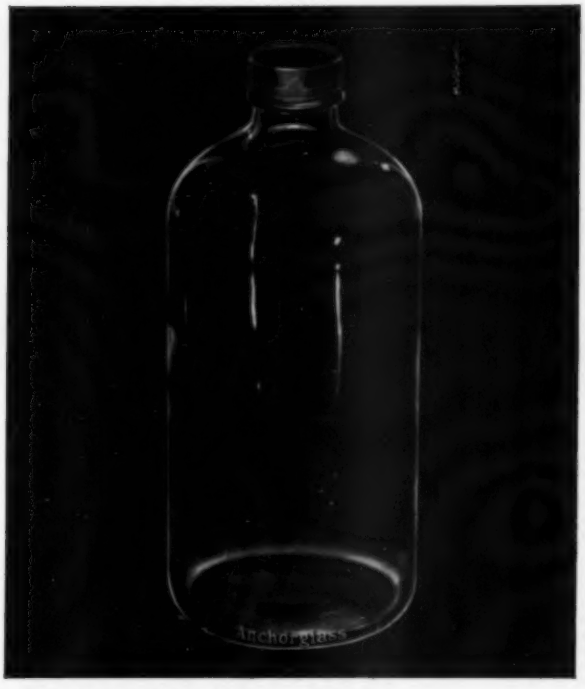
MANY Styles AND Sizes

...BUT ALL ANCHORGLASS CONTAINERS HAVE THE SAME QUALITIES

THEY are uniformly strong, tough, dependable lightweight glass containers—high in chemical durability, accurate in dimensions, capacity and finish. They are designed to withstand the knocks of modern high speed production lines, handling and transportation.

Anchorglass containers are the result of practical engineered designs, careful selection and control of raw materials, uniform distribution of glass, precise temperature control in annealing and thorough quality control through laboratory tests and regular inspections.

If you package or contemplate packaging in glass let us send you sample containers with suitable closures for your particular needs. The services of our Package Engineering and Research Laboratories are also available to help you solve glass packaging problems.



Anchorglass® Boston Round Bottles are available in 15 different sizes ranging from ½ to 128 ounces—in crystal, amber or emerald green glass.

ANCHOR HOCKING

GLASS CORPORATION
LANCASTER, OHIO

★

The Most Famous Name in Glass

Spins on—Seals—Spins off without freezing.

Merit **SEAL** outsells *all* others because its patented construction works better.

NOW AVAILABLE IN THE FOLLOWING NEW SIZES: 38, 40 and 45 mm. Other Sizes—48, 51, 53, 58, 60, 63, 66, 70, 75, 83, 89 and 100 mm.

CROWN

CROWN CORK AND SEAL COMPANY INCORPORATED

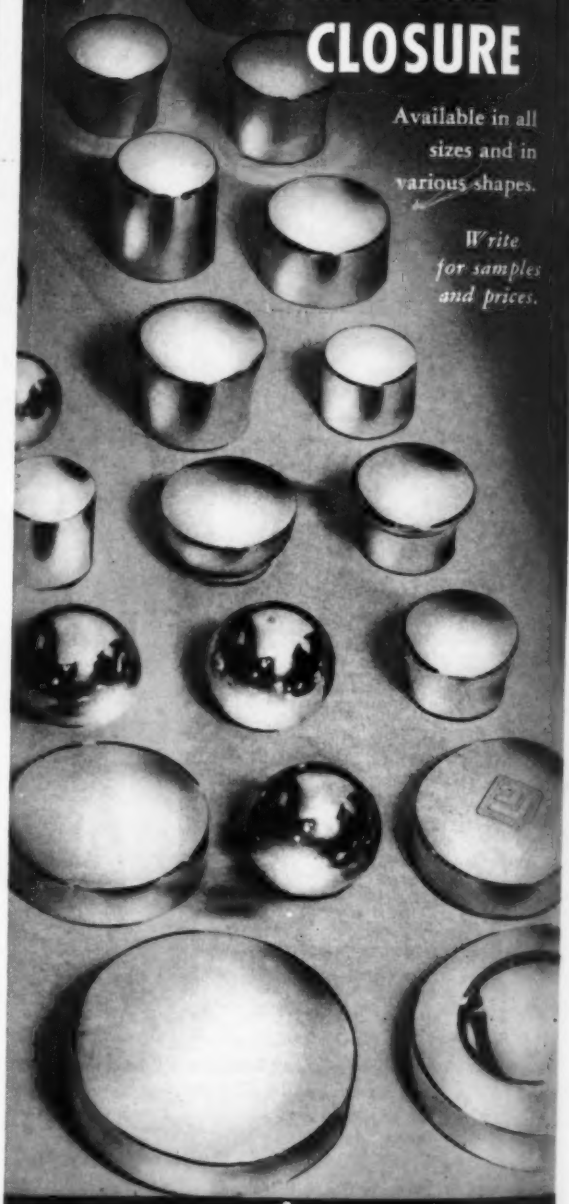
SPECIALTY DIVISION ST. LOUIS 15, MISSOURI

TOP OFF YOUR BOTTLE OR JAR WITH A--

RICHFORD GOLDCÔTE CLOSURE

Available in all sizes and in various shapes.

Write for samples and prices.



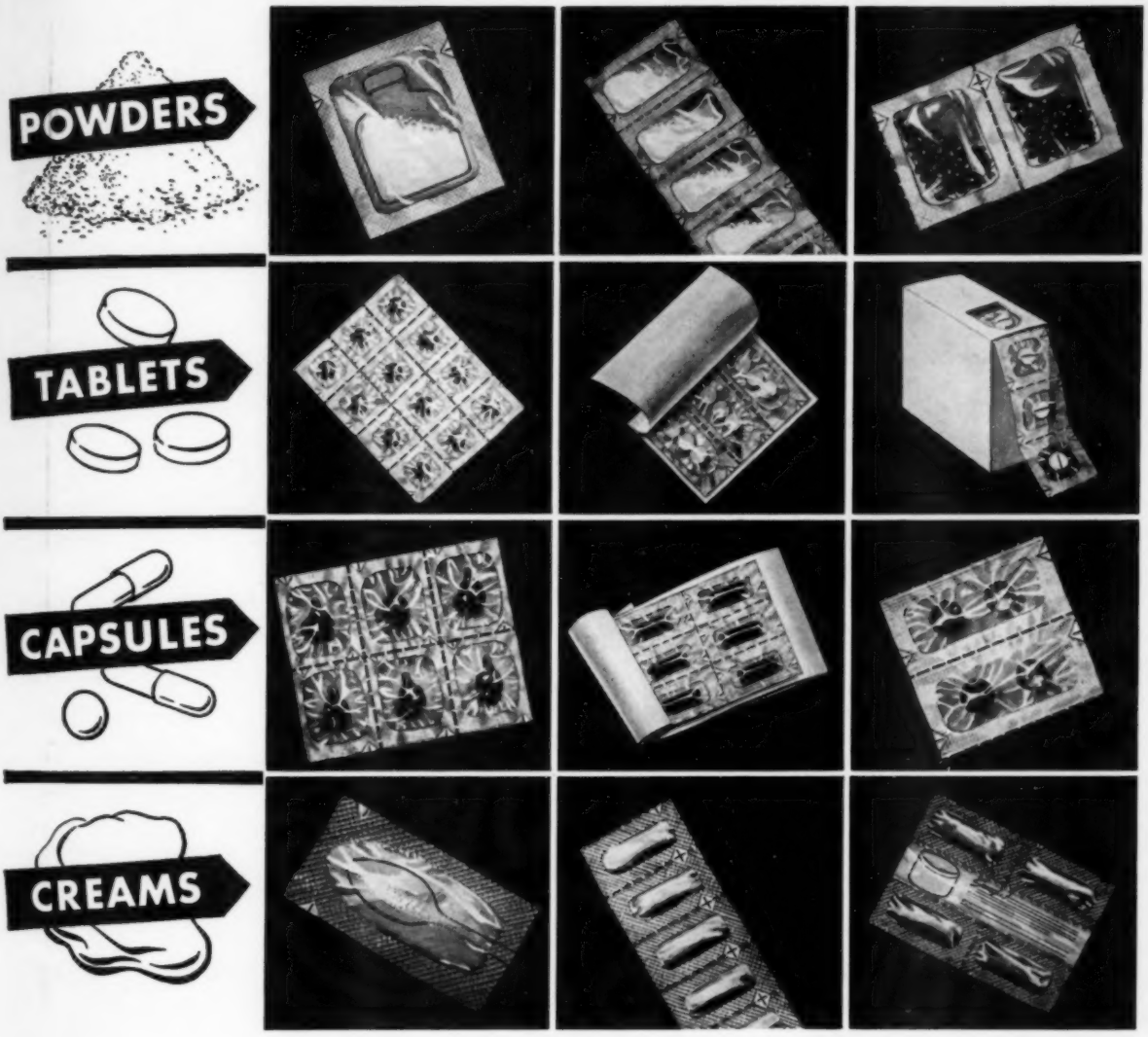
RICHFORD

CORPORATION

404 FOURTH AVENUE, NEW YORK 16, N. Y.

YOUR PRODUCT—PACKAGED AS YOU WANT IT

IN IL SUPER-SEALTITE



In ones or twos or twenties . . . round or square or oval . . . as creams, powders, tablets or capsules—Ivers-Lee packages them all exactly as you want them.

Yet I-L packages all with the exclusive features of I-L Super-Sealtite*—features with which Ivers-Lee alone can provide you . . . the superlative advantages of Feather-Lite Tear and Double Diamond Tear Notches*—complete, absolute protection and positive consumer acceptance.

UNIT-PACKAGING HAS BEEN OUR BUSINESS FOR OVER 34 YEARS

At the National Packaging Exposition and Convention

BOOTH No. 867

*Pats. and Pats. Pending

IVERS UNIT PACKAGING LEE CO.

215 CENTRAL AVENUE NEWARK, NEW JERSEY

Propylene glycol U.S.P., produced by Carbide since 1931, plays many important roles in the Drug, Cosmetic, and Perfume industries.

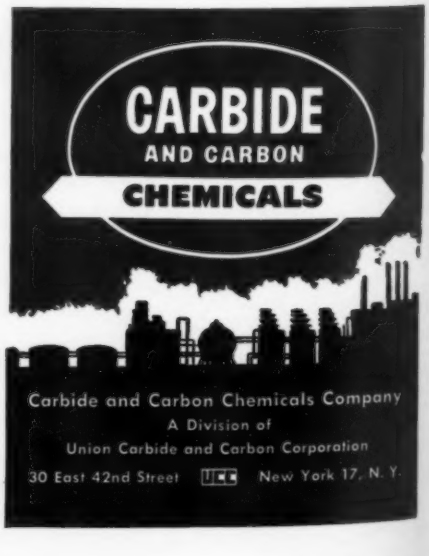
PROPYLENE GLYCOL IN:

Drugs . . . More versatile than most generally used solvents, propylene glycol dissolves many pharmaceutically active substances. Consider it as your choice when preparing tinctures, solutions, and elixirs.

Cosmetics . . . Try propylene glycol in your cosmetic creams, lotions, and shampoos. This hygroscopic, water-soluble liquid enhances the softening action upon the skin and prevents "rolling" or drying out of the creams while in use, or in storage. In lotions and shampoos, propylene glycol couples the oil, lanolin, and soap in water.

Perfumes . . . An excellent solvent for most perfumes, propylene glycol allows a rapid and complete dispersion of ingredients throughout the preparation.

Whatever your use, propylene glycol from Carbide and Carbon will give top performance at your command. For further information write for your copy of the "Emulsions Booklet," (F-4186). Offices in principal cities. In Canada: Carbide and Carbon Chemicals, Limited, Toronto.



News . . .

Promoted by Wirz

Mark K. Dresden has been named president of A. H. Wirz, Inc., succeeding H. S. Darlington who retired earlier this year. Mr. Dresden was formerly vice-president and treasurer.

Townsend C. Cox has become vice-president in charge of engineering and labor relations; Robert Cox, vice-president in charge of production and purchasing; and H. Walter Rowan, treasurer.

Forms Batt Pharmacal Co.

Ned Batt, who has been associated with leading pharmaceutical manufacturing plants, has formed his own corporation, Batt Pharmacal Co., to produce tablets, capsules and private formulas. The company is located at 67 Essex St., Jersey City, N. J. Mr. Batt is president, and Eugene Schiff, secretary-treasurer.

Frey with Colgate

Samuel L. Frey, formerly vice-president and media director of Doherty, Clifford, Steers & Shenfield, Inc., has been appointed media director of Colgate-Palmolive Co.

Evans on Business Trip

Dr. Ralph L. Evans, Sr., president of Evans Research & Development Corp., left on a four-month business trip on February 10 to England and the Continent. Accompanied by Ralph L. Evans, Jr., manager of the foreign department, Dr. Evans will visit manufacturing plants and laboratories affiliated with his organizations.

Promoted by Norwich

John D. Hayes has been elected secretary of the Norwich Pharmacal Co., and Paul T. Dohl, assistant secretary, to fill existing vacancies. Mr. Hayes, general counsel for the company, previously served as assistant secretary.

MARK K. DRESDEN

H. S. DARLINGTON

JOHN D. HAYES

Black Heads Chem. Sales

Frank F. Black has been named sales manager of the chemical sales division of Chas. Pfizer & Co., with Paul E. Weber as assistant sales manager, according to Marshall N. de Noyelles, general manager of that division. Mr. Black, previously assistant manager of the chemicals sales division, has assumed specific responsibility for operation of the division. Mr. Weber, formerly national field sales manager, will devote particular attention to staff activities of the division including supervision of its industry managers and direction of sales promotion, advertising and planning.

Ronald Helps, formerly with Chemical Specialties, Inc., the American sales affiliate of Syntex, S.A., will act as special assistant to Mr. Black. John R. Marshall has been named sales service manager, with R. W. Burnham as his assistant.

The Food & Beverage, medicinal chemical and industrial chemical sales departments will continue to be headed by John E. McVeigh, George E. Mauer and W. E. Braswell, respectively. Robert C. Denman has become assistant manager under Mr. McVeigh.

Soc. of Flavor Chemists

The Society of Flavor Chemists held their first regular meeting on February 1 at the Little Venice Restaurant, New York, with technical representatives of most of the leading suppliers of basic flavoring materials in attendance. Jack Bouton, Synfleur Laboratories, was elected temporary chairman at the meeting.

The purpose of the organization is primarily social, but occasionally there will be informal talks on matters of mutual interest.

Koonse Joins Pitman-Moore

Howard J. Koonse, specialist in the science and art of tissue culture, an important phase of polio vaccine production, has been appointed to the Pitman-Moore Co. biological staff, according to Dr. S. R. Bozeman of the company's Zionsville laboratories.

With Geriatric Pharm.

Howard Kraslow, formerly vice-president of the Purdue Frederick Co., has been appointed vice-president in charge of sales of Geriatric Pharmaceutical Corp., according to Gustave Bardfeld, president.

Furman Retires from Heyden

Preston Furman, who has been with Heyden Chemical Corp. for 52 years, including 34 years in the Heyden sales department, retired on March 1, according to Simon Askin, president. He was guest of honor at a luncheon at the Union League Club, New York, on February 24, given by Mr. Askin and John P. Remensnyder, chairman of Heyden. He was also guest of honor at a luncheon on February 26 at the Chemists Club given by Fritz Degener, sales manager.

Mr. Furman was elected the first member of the Heyden Fifty Year Club in 1952 and for the past two years has served Heyden in a special sales capacity.

McClure Heads Carbide

Harry B. McClure, executive vice-president of Carbide & Carbon Chemicals Co., has been appointed president, succeeding Dr. J. G. Davidson who becomes chairman of the company and a member of the appropriations committee of Union Carbide. Dr. Davidson is also a vice-president of Union Carbide and Carbon Corp.

PHARMACEUTICAL

Flavors

Improvement in the inherent unpleasant taste of many pharmaceuticals can be effectively accomplished through modern flavor research.

Simply "masking" the unpleasantness is not always the answer. In the modern treatment, logical and congruous flavoring constituents are added to the basic unpleasant note, turning it into a component of an over-all palatable flavor.

Our experience in treating problems of taste in pharmaceuticals may be of considerable help in effecting an improvement in your product. All medicinal flavor problems are considered individually by the pharmaceutical section of the van Ameringen-Haebler flavor research laboratories.

We solicit the more difficult taste problems confronting manufacturers of pharmaceuticals and proprietary medicines.

VAN AMERINGEN-HAEBLER, INC.

521 WEST 57th STREET • NEW YORK 19, N. Y.

makers of Alva flavors

Hicks with Julius Schmid

T. Edward Hicks, formerly vice-president of Armour & Co. and general manager of the Armour Laboratories, has become marketing director of Julius Schmid, Inc. He will direct at management level the activities of sales, advertising, sales promotion, new product development, and other marketing problems.

Joseph Kreisberg, divisional manager of the central states division of Julius Schmid, has been appointed general sales manager, effective June 1.

Magnus at Safety Conference

Percy C. Magnus, Mabee & Reynard, Inc., was appointed by Gov. Thomas E. Dewey to represent New York State at the 3-day White House Conference on Highway Safety in Washington, D.C., from February 17 to 19, under the chairmanship of the governor of Colorado.

As president of the Citizens Traffic Safety Board of the City of New York, Mr. Magnus will aid in mobilizing public opinion on a community level on behalf of highway safety.

Esso Sells Nujol, Mistol

Esso Standard Oil Co. has sold "Nujol" and "Mistol" to Plough, Inc. The sale included transfer of world-wide trade-marks and good will, all inventories of finished goods and supplies and all equipment used in their manufacture.

Nujol, a medicinal mineral oil, has been marketed by Esso Standard Oil and its affiliates since 1915. Mistol, a medicated nose drop, was introduced by the company in 1924. Both products have been continuously marketed and advertised throughout the United States and in over 50 foreign countries.

Duveen Talks on Lavoisier

Denis I. Duveen, president of Duveen Soap Corp., delivered a lecture on "Lavoisier—the Innovator," before the American Section of the Societe de Chimie Industrielle on February 18. One of the foremost authorities on Lavoisier and his work, Mr. Duveen has been collecting books and writing monographs on the history of chemistry for a quarter of a century. For the last five years, he has been doing research exclusively on Lavoisier and his work.

In connection with the lecture, there was a very interesting exposition of books and manuscripts concerning Lavoisier which Mr. Duveen provided from his library of works on chemistry.

Philip Cortney, president of Coty, presenting Henry F. Kriete, Coty Pacific coast division manager, with gold medal and scroll in honor of 25 years' service with company.

Coty Employees Honored

Nineteen employees of Coty, Inc., with the company from 15 to 25 years, received gold and silver medals at an evening party in the Hotel Astor, New York, on February 12.

Philip A. Cortney, president of Coty, presented the awards. Winners of the Gold Medal (25 years of service) were Henry F. Kriete, Martin A. Mutterer, Anthony Castiglia, Mary A. Fleming, Ethel Johnson, Pauline A. Krause, Helene M. Morandini, Helen M. Nelson, Ellen J. Palmer, Albert Scanlan, Mary C. Vicin and John Zwick, all of the Coty factory.

Winners of the Silver Medal (15 years of service) were: Fanny L. Guilfoyle, Elizabeth Heese, Lucille Mazzocchi and Olav Stokke of the factory, Dean H. Caziarc and Jean R. Gayout of the sales department, and Agnes M. Coughlin of the office staff.

New Rubinstein Plant

Ground was broken last month for Helena Rubinstein's first West Coast plant, at 1925 Maple Ave., El Segundo, Calif. Officiating at the ceremony were: Oscar Kolin, vice-president and general manager of Helena Rubinstein; George S. Carroll, national sales manager, and F. Arthur Bickel, president of Brown & Matthews Inc., builders; Henry Rosen, western sales manager, Rubinstein; Harold F. King, consulting engineer; and Frank J. McCarthy, resident superintendent.

On a 2-acre plot, the one-story fireproof building will comprise 45,000 square feet of warehouse and manufacturing area and 5000 square feet of finished offices, including a fully equipped cafeteria. Cost of the building will exceed $500,000.

The new building will be four times the size of the present Rubinstein Coast area quarters at 1020 Valencia St., Los Angeles.

Beckett with Gregg

Donald W. Beckett, for 10 years associated with Warner-Hudnut as advertising manager, is now associated with C. L. Gregg, 22 East 17th St., New York, in a sales capacity. Gregg is engaged in the production of advertising display materials, dealer helps, window streamers, booklets and catalogs.

Parish Named Prod. Supt.

P. S. Parish has been appointed production superintendent of the Upjohn Co., according to Dr. F. A. Eberly, director of production. He will supervise the departments of printing, production personnel planning, and production budget and cost analysis.

Bob Barnes, California representative of Dorothy Gray, receiving Distinguished Salesman's Award at dinner sponsored by Sales Executives Club, Waldorf-Astoria Hotel, New York. Joseph Keho, Dorothy Gray president, is at left, and James Boohecker, general sales manager, on right.

There's double protection against "shelf-life" losses when you specify GIVAUDAN

Shelf-life difficulties stem from two main causes: lack of just the right product appeal to assure steady consistent consumer demand; or instability inherent in the product which causes premature separation or deterioration.

The first is sometimes caused by that elusive, intangible something in fragrance that marks the difference between a single sale and a steady customer. The second can be prevented by proper selection and testing of ingredients and other factors affecting stability of the finished formulation.

When you specify Givaudan as your source, these two "shelf-life" factors receive careful attention. We will welcome the opportunity to provide more information on this phase of Givaudan service.

GIVAUDAN

Better perfume materials through constant research and creative ability

GIVAUDAN-DELAWANNA, INC.
330 West 42nd Street • New York 36, N.Y.

Branches: Philadelphia • Boston • Cincinnati • Detroit
Chicago • Seattle • Los Angeles • Toronto

HEINZ AHLMEYER

OTTO M. MILLER

ALBERT E. BUSH

Promoted by Gair

Heinz Ahlmeyer has been appointed assistant division manager of the Gair cartons division, according to Norman F. Greenway, vice-president in charge of folding-carton operations, Robert Gair Co. He had formerly been superintendent of plant maintenance.

Otto M. Miller, assistant plant manager at Gair's plant, Elkhart, Ind., has become general manager of the Angelus Paperbox Co. division. He will be responsible for the production of the paperboard mill, folding carton, and set-up box departments.

Albert E. Bush, formerly with Angelus Paperbox Co., has been made general manager of the Angelus Corrugated Box division of Gair, in charge of corrugated container operations.

Named Ass't Research Head

Dr. Robert W. Heinle has been appointed assistant director of research of the Upjohn Co., according to Dr. E. G. Upjohn, president. He will concentrate his efforts on research in nutrition.

He had formerly been working in the department of clinical investigation.

Stalbaum with F. J. Stokes

Ralph H. Stalbaum has joined the sales staff of the New York district office of the F. J. Stokes Machine Co., according to J. C. Coleman, district manager.

MMR Annual Sales Meeting

Magnus, Mabee & Reynard, Inc., held its 23rd annual sales meeting at the Hotel Warwick, New York, from February 10 to 13. Percy C. Magnus, president, opened the four-day meeting with a talk in which he predicted a steady advance in the company's worldwide business during 1954. Further expressions of optimism were added by vice-presidents J. B. Magnus and R. B. Magnus.

Arthur H. Downey, technical director, and a group of scientific and sales personnel discussed the development of new products, new applications and the streamlining of the company's service to many diversified industries in all parts of the world.

Bernard Jeffs, director of advertising, presented a coordinated program of marketing to implement the company's policy of planned expansion.

Two New Atlas Plants

Atlas Powder Co. has started construction of two esterification plants, one at Memphis, and the other, at Brantford, Ontario. The plants will expand the company's already substantial production of emulsifiers and other surface-active agents for the cosmetic and pharmaceutical industries.

The Memphis plant, larger of the two, will cost more than $1 million and is scheduled for completion by late 1954. It will be situated on property purchased from, and adjacent to, the HumKo Company, a subsidiary of National Dairy Products Corp. Atlas is at present the distributor for the fatty acids sold under the trade name, Hystrene, produced by the Trendex division of this HumKo Company.

The Canadian company is being erected by Atlas Powder Company, Canada, Ltd. The first unit, to cost about $350,000, will be in operation within six months. Preliminary planning has been started, looking to the addition of a second unit for the production of ethylene oxide derivatives at this location.

Twenty-third annual sales and staff dinner of Magnus, Mabee & Reynard, Inc., held at Hotel Biltmore, New York, February 13.

JAMES J. DRISCOLL

DR. CHARLES L. BOSWELL

HOWARD HOPKINS

Driscoll, V.P., Tangee

James J. Driscoll, comptroller of the House of Tangee for 13 years, has been elected a vice-president, according to Constance Luft Huhn, president.

75 Years for Chattanooga

The Chattanooga Medicine Co. celebrated its 75th year on February 20 with a Diamond Jubilee Open House at the plant, and a banquet in the evening at Fairyland Club on Lookout Mountain.

At the banquet, Paul J. Viall, as "representative of 100 per cent" of the company's employees, presented a watch to Lupton Patten, president, as an expression of appreciation of his leadership. Mr. Patten, sixth president since the company was founded, began his service in 1928, and has been president since 1938.

J. B. Lewis, personnel director, told the banquet guests that hereafter employees with records of 25 years or more of continuous service will be given an extra week of paid vacation during their 25th year with the company.

Sam E. Noble, vice-president in charge of production, introduced a large group of retired employees.

A. Letcher Grey, vice-president in charge of promotion, introduced at the Banquet individual members of the traveling sales personnel, several of whom have notably long records of service. H. O. Wilson, whose sales territory is the West Coast, had been in the travelling sales service of the Chattanooga Medicine Company for 50 years.

The company began in 1879 with two products—Black-Draught, an herbal laxative; and Cardui, a sedative for dysmenorrhea. On its 50th anniversary, there were seven products; today there are 26, including three chemical compounds from its Chattem Chemicals division and three packaged food mixes from its Patten Food Products division.

Smith-Dorsey Appointments

Howard Hopkins, plant manager, has been appointed associate director of pharmaceutical development of Smith-Dorsey, division of the Wander Company, according to V. T. Johnson, vice-president.

Dr. Charles L. Boswell joined the company on February 1 as plant manager. He had formerly been superintendent of pharmaceutical production at Commercial Solvents Corp.

Semi-Retirement for Norris

Max P. Norris, manager of the wholesaler sales division of E. R. Squibb & Sons for many years, recently announced his semi-retirement from active service. He will continue to be associated with Squibb in special assignments which will draw upon his broad experience in drug trade distribution, and will attend important national and sectional drug meetings. He has been with Squibb for 25 years.

Bugbee, HIF President

George Bugbee, for the past 11 years executive director of the American Hospital Association, Chicago, has been appointed president of Health Information Foundation. He succeeds the late Admiral W. H. P. Blandy, who held that position from 1950 until his death in January of this year. Mr. Bugbee will assume the post about May 1.

Manning in New Lilly Post

Robert J. Manning has become manager of the newly created salesmen's promotion material department of Eli Lilly & Co. This department will develop promotional aids for the sales force and perform other services for Lilly representatives.

Mr. Manning joined the company in 1937 as a representative in Minneapolis and two years later was transferred to the home office as a sales promotion representative in the product promotion and sales training department.

Lupton Patten (right), president of Chattanooga Medicine Co., receiving diamond-studded watch from "100 per cent of company employees" at banquet climaxing 75th Anniversary of company's founding.

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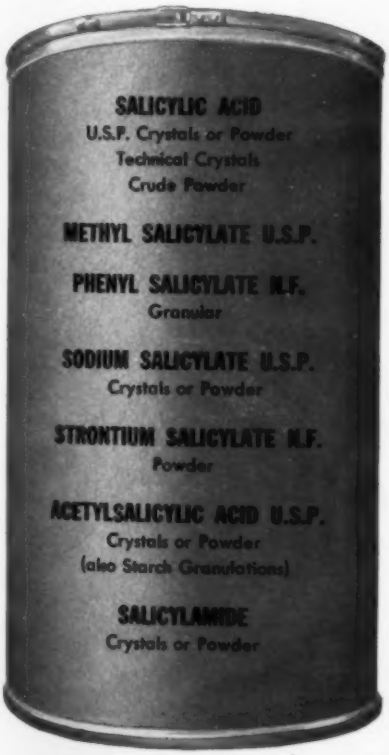

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Greenwald Forms Company

David Greenwald, for seven years general manager of Maurice Rentner's Cosmetic and Perfume divisions, has organized Exquisite Perfumes and Accessories, with offices at 404 Fourth Ave., New York.

The new firm intends to concentrate on packaging for the perfume industry.

S&D Appointments

Charles A. Krieger, formerly director of purchasing for Sharp & Dohme, division of Merck & Co., has been named assistant to the vice-president for industrial and public relations, according to Wilbur W. Lauer, vice-president and director of industrial and public relations.

Samuel McClenahan, formerly manager of production control, has been appointed director of purchasing, replacing Mr. Krieger.

Edward C. Towle, formerly manager of pharmaceutical production, has been appointed manager of a newly constituted production and material control section representing the consolidation of the previous production control and warehousing sections.

David V. Knott has become assistant manager of the production and material control section and will retain supervision of the various warehousing functions. He will also provide staff assistance to Mr. Towle on all other operations of the section.

Howard B. Zaun will continue as Sharp & Dohme traffic manager and will also be responsible to Mr. Knott for all warehousing operations at the main warehouse, located at West Point, Pa.

Edward R. Hamm, formerly manager of packaging development, has been appointed manager of the new packaging development and pharmaceutical production section.

Kenneth D. Caldwell being honored by Max Factor officers and directors on 25th anniversary as advertising director. Left to right: Maurice R. Chez, president, Sales Builders, Inc.; Max Factor, Jr., president, Max Factor & Co.; Mr. Caldwell; Davis Factor, chairman of board; Louis Factor, treasurer; and Max Firestein, vice-president.

Caldwell Honored by Factor

Kenneth D. Caldwell, advertising director, was honored last month by officers and directors of Max Factor & Co. on his 25th anniversary with the firm. He was given a surprise luncheon at the Hotel Statler, Los Angeles, which was attended by Davis Factor, board chairman; Max Factor, Jr., president; Max Firestein, vice-president; Louis Factor, treasurer; and Maurice R. Chez, president of Sales Builders, Inc., Factor's sales, advertising, and distributing organization in the United States. Mr. Caldwell is vice-president in charge of advertising of Sales Builders.

Stanton Moves to N. Y.

Stanton Sales Company has moved its office from Chicago to New York and will continue with the sale of chemicals to the cosmetic, drug and other industries in the eastern areas as well as in the various mid-west territories. The new address is 40 East 40th St., New York 16, and the telephone number, MUrray Hill 3-6742.

Ott Promoted by Upjohn

Dr. A. C. Ott, of the chemistry department, the Upjohn Co., has been appointed head of the biological evaluation office, according to Dr. Richard S. Schreiber, vice-president and director of research. He will be responsible for coordinating the various functions related to the company's screening program.

Dr. W. B. Reid, Jr., has become assistant business manager of the research division. The business manager of that division is O. R. Woods.

Libby with Toni

Louis H. Libby has been appointed director of detergent research of the Toni division of the Gillette Co., according to Raymond E. Reed, vice-president in charge of research and product development. He had formerly been associated with the soap division of Armour & Co.

Bower with Davis & Geck

Russell P. Bower, formerly associated with Ayerst Laboratories, has been appointed purchasing agent for Davis & Geck, Inc.

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EDWARD C. TOWLE

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you've got a good line...

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ORBIS *Series* **No. 600**

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Chypre	Jasmin	Oriental
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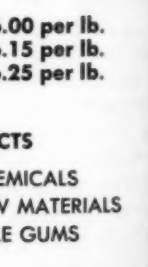

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JAMES R. McGOLDRICK

FRED M. BELCOVE

CHARLES C. WOOD

Promoted by Brockway

James R. McGoldrick has been promoted to district manager of the St. Louis office of the Brockway Glass Co. He will handle all of Brockway's lines, including proprietary and pharmaceutical containers.

Chicago Perfumery Elections

William D. Ackley, van Ameringen-Haebler, Inc., has been elected president of the Chicago Perfumery, Soap and Extract Association, Inc. Additional officers include Ellis Johnson, Hazel Atlas Glass Co., vice-president; A. H. Culver, Packing Materials Corp., secretary; and E. F. La Sarre, St. Clair Specialty Mfg. Co., treasurer.

The Association held its monthly luncheon on February 10 at the Graemere Hotel. Fred Kohler, pioneer TV Wrestling match-maker and owner of Marigold Gardens, was guest speaker.

New Squibb Branch Bldg.

E. R. Squibb & Sons recently opened a new 20,000-square-foot branch building in Kansas City. J. J. Toohy, squibb executive vice-president; W. L. Arscott, sales vice-president; and Marvin A. Fortner, Kansas City regional manager looked on as Lt. Governor James T. Blair, Missouri, cut the ribbon marking the official opening. States served by the branch include Kansas, Iowa, Nebraska, Missouri, Oklahoma and Arkansas.

Following the ribbon-cutting, $500 of Squibb products, the first post-dedication shipment of drugs from the new branch, was presented to the Kansas City Camp for Handicapped Children as a gift.

Other Squibb executives acting as hosts at the open house in addition to those from the New York office, were Ed Bauer, associate regional sales manager; John A. Burch, division manager; and Sam McQuaid, branch manager.

Belcove with Florasynth

Fred M. Belcove has been appointed to the Chicago sales staff of Florasynth Laboratories, according to William Lakritz, president.

Del Torto with Pfizer

Richard Del Torto has joined Chas. Pfizer & Co. as executive assistant to Dr. W. Alan Wright, medical director of Pfizer Laboratories. He was formerly associated with Schenley Laboratories.

Donnelly in New Lilly Post

Patrick A. Donnelly has been named to the new post of sales personnel relations and training associate of Eli Lilly & Co. He had formerly been product addition studies associate at the home office.

Postrel with West-Ward

Julian Leo Postrel, formerly a chemist with the New York State Board of Pharmacy, has been appointed chief pharmacist and production manager of West-Ward Pharmaceutical Co.

Wood, V.P., Amer. Ferment

Charles C. Wood has been appointed vice-president and sales manager of American Ferment Co., subsidiary of Sterling Drug Inc., according to J. M. Hawkins, president. He had formerly held a top sales post with Winthrop-Stearns as manager of its retail sales division.

Changes in Givaudan Magazine

The *Givaudanian*, publication of Givaudan-Delawanna, Inc. appeared in January with a new and modern masthead. On the cover was a four-color advertisement of the Italian company, L. Givaudan & C., S.A.I., Milan, Italy.

Starting in that particular issue, the *Givaudanian* presented the first of a series of articles on the "History of Cosmetics," the sole translation rights of which were obtained from the Italian magazine, *Rivista Italiana*.

It is the intention of the Givaudan publication to present additional articles of great interest in future issues, together with new sections from time to time.

Lt. Gov. James T. Blair, Missouri, cutting ribbon in recent ceremony marking opening of new E. R. Squibb & Sons branch in Kansas City. Left to right: J. J. Toohy, executive vice-president of Squibb; Lt. Gov. Blair; W. L. Arscott, Squibb sales vice-president; and Marvin A. Fortner, Squibb Kansas City regional manager.

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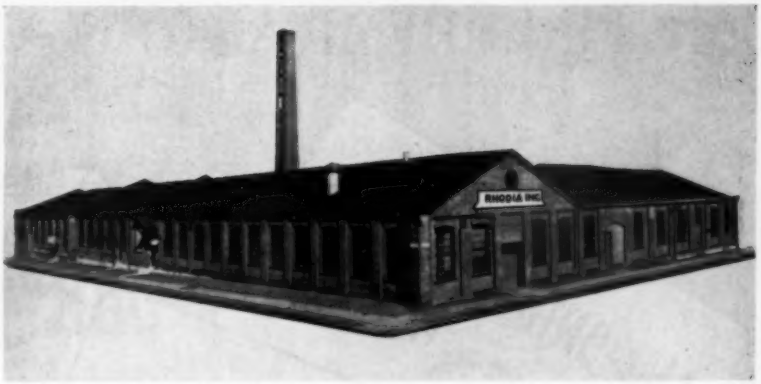
Rhodia Opens New Plant

Rhodia, Inc., has started operations at its new aromatic chemicals plant in Paterson, N. J., according to Edward A. Bush, manager of the company's aromatic sales.

At the plant, Rhodia will create and distribute a complete and original line of aromatics, perfume bases and specialties, under processes recently reacquired from E. I. du Pont de Nemours & Co.

Louis Appel, for many years a perfumer for du Pont, is now head perfumer at the Paterson Plant.



New aromatic chemicals plant of Rhodia, Inc., at Paterson, N. J., which will create and distribute a complete and original line of aromatics, perfume bases and specialties, under processes recently reacquired from du Pont

Homan Retires from D&O

Charles O. Homan, vice-president in charge of sales, Dodge & Olcott, Inc., retired from active service on February 1, the anniversary of his 48th year with the company. He will remain on call in an advisory capacity.

Mr. Homan was 17 when he began his first year and his first job, with Dodge & Olcott. He worked in the essential oil room for three years, and during the next four years, worked as an office clerk. He first began to sell in 1913 and for the next five years worked in the Metropolitan New York area.

After service in the First World War he resumed this D&O association as representative for New York State, Canada, Michigan, Ohio, Indiana and Kentucky. Beginning in 1927 he traveled exclusively in Canada, Connecticut, Massachusetts and New York, becoming sales manager of the New York office in 1938.

Mr. Homan became vice-president in charge of sales in 1945, a position he served until his retirement.

Named Director of Purchases

Robert A. Behrmann has been appointed director of purchases, Emery Industries, succeeding K. K. Boyd who some time ago was elected vice-president in charge of sales and purchases.

George R. Flint

George R. Flint, who became president of Flint, Eaton & Co. following the death of his father, James G. Flint, in 1927, died on February 4. He was 70 years old. His father founded the firm.

He is survived by two sons, J. Kenneth Flint and C. R. Flint; two daughters, Mrs. Alan Easterling and Mrs. Alton Snyder; and seven grandchildren.

Victor Vivaudou

Victor Vivaudou, a former perfume manufacturer and founder of V. Vivaudou, Inc., died February 17 in Glen Cove, N. Y. at 74 years of age. At one time, his firm had two perfume plants in the United States and one each in Cuba, France and Canada.

Upjohn Promotions

Alfred C. Scott, sales manager of the Kalamazoo branch of the Upjohn Co., has been promoted to general sales staff manager, with responsibility for supervising the staff activities of the sales division in Kalamazoo.

R. Charles Byce, business manager of the sales division, has become manager of the general chemical sales department.

Dr. Charles L. Parsons

Dr. Charles L. Parsons, secretary of the American Chemical Society from 1907 to 1945, died February 14 in Pocasset, Mass., at the age of 86. He was appointed chief of the division of mineral technology in the Bureau of Mines in 1911 and was chief chemist of the bureau from 1916 to 1919. During the first world war he was a key figure in the army's chemical warfare section.

Frank Steed

Frank Steed, administrator of the southern sales territory for Shulton, Inc., for the last 18 years, died on January 26 at his home in Macon, Georgia, after an illness of several months.

He joined the company in 1936 as one of the first salesmen to launch the Early American Old Spice line.

Shepherd in CSMA Post

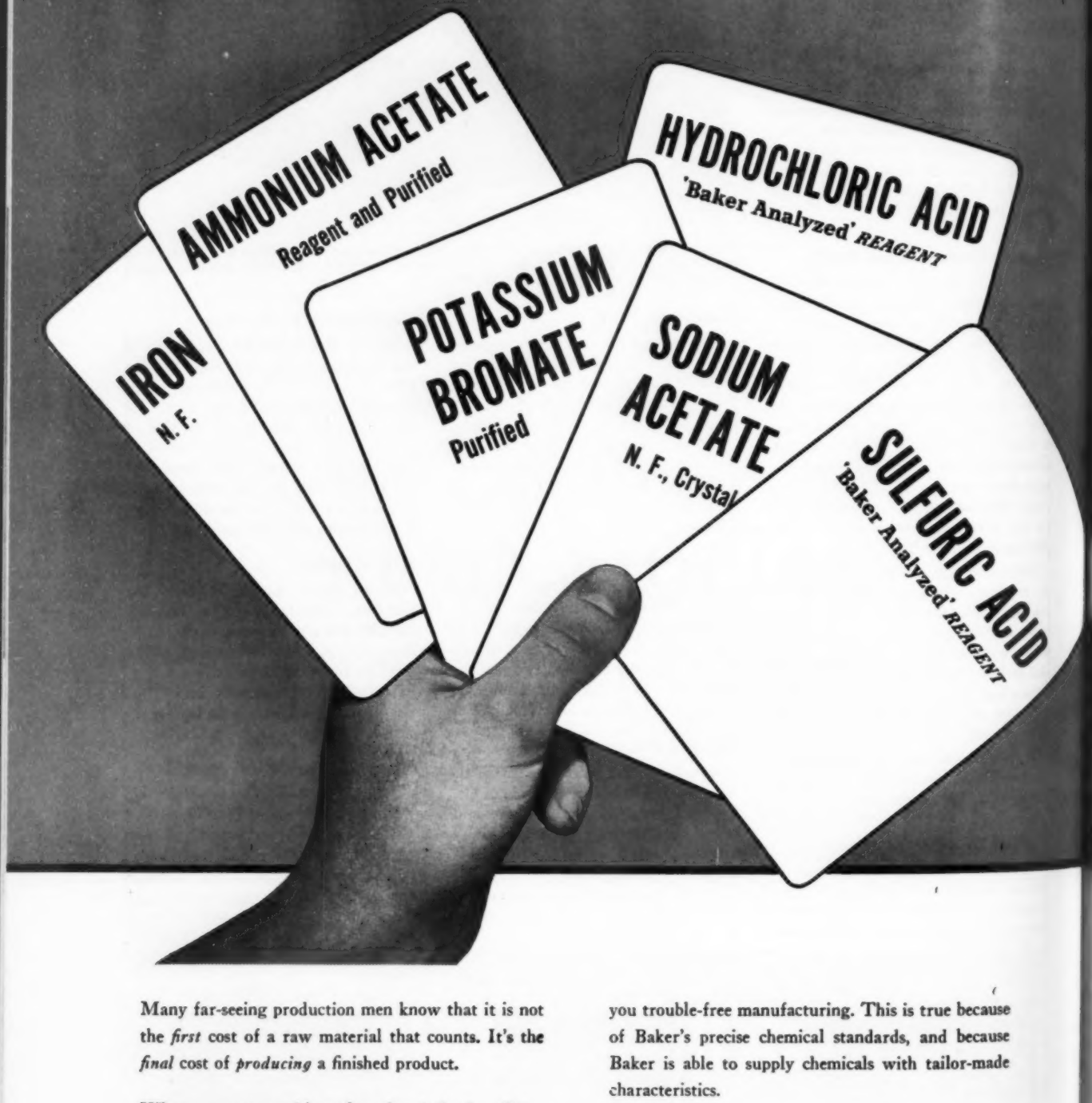
H. R. Shepherd, vice-president and director of research of the Connecticut Chemical Research Corp., has been elected chairman of the aerosol division of the Chemical Specialties Manufacturers' Association, succeeding Dr. E. G. Young of E. I. du Pont de Nemours & Co. He was elected at the recent CSMA annual meeting in Washington.

ROBERT A. BEHRMANN

ALFRED C. SCOTT

H. R. SHEPHERD

One way to cut process costs: Start with a Baker FINE CHEMICAL OF CONTROLLED PURITY



Many far-seeing production men know that it is not the *first* cost of a raw material that counts. It's the *final* cost of *producing* a finished product.

When you start with a fine chemical of uniform quality and high purity, you improve processing, eliminate purification steps, cut production costs.

You can *depend* upon Baker Fine Chemicals to give you trouble-free manufacturing. This is true because of Baker's precise chemical standards, and because Baker is able to supply chemicals with tailor-made characteristics.

Above are shown just a few Baker Fine Chemicals. For a complete list with current prices, simply write to this address: J. T. Baker Chemical Co., *Executive Offices and Plant,* Phillipsburg, New Jersey.

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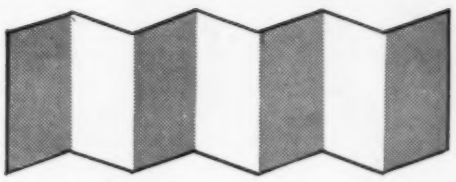
Trade Literature



Stokes Pharmaceutical Equipment

A condensed four-page catalog describing the company's complete line of pharmaceutical equipment has been issued by the F. J. Stokes Machine Company, 5500 Tabor Road, Philadelphia 20. Detailed specifications are given for single punch and rotary tabletting presses; mixing, flaking, drying, and granulating machines; coating and polishing pans; tube filling, closing and sealing equipment; water stills; and freeze-drying equipment.

Vitamin B_{12} Bulletin

Merck & Co., Rahway, N. J., has issued a 24-page Merck Service Bulletin entitled Vitamin B_{12}—Part I—Pharmaceutical Information. The bulletin includes technical details of the chemistry and physical properties of vitamin B_{12}, together with pertinent pharmaceutical information. Part II, to be published separately, will present the clinical story of vitamin B_{12}, with an exhaustive annotated bibliography covering all phases of relevant laboratory and clinical research.

Emery Modified Fatty Acids

Emery Modified Fatty Acids is the title of a new booklet issued by the Development and Service Department, 2504 Carew Tower, Cincinnati 2. The booklet describes Emery's new structurally modified fatty acids, giving their typical characteristics and unique properties. Some effects of their conventional behavior in finished products are also discussed.

Glycol Bulletin

The Nitrogen Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, has issued a 33-page bulletin on ethylene oxide, ethylene glycol, and diethylene glycol. The bulletin gives full descriptions of these chemicals including uses, chemical and physical properties, handling and storage features, and safety precautions. Also given are complete analytic procedures to determine color, odor, acidity, impurities, boiling range, specific gravity, etc.

Practicing Fair Trade

A new 16-page pamphlet entitled How to Practice Fair Trade in the Marketplace, has been issued by the Bureau of Fair Trade, 205 East 42 Street, New York 17. The pamphlet presents, in 24 questions and answers, the fundamentals involved in the practice of fair trade. It also includes sample fair trade contracts used by manufacturers in establishing both retail and wholesale minimum fair trade prices.

Glycerine in Product Conditioning

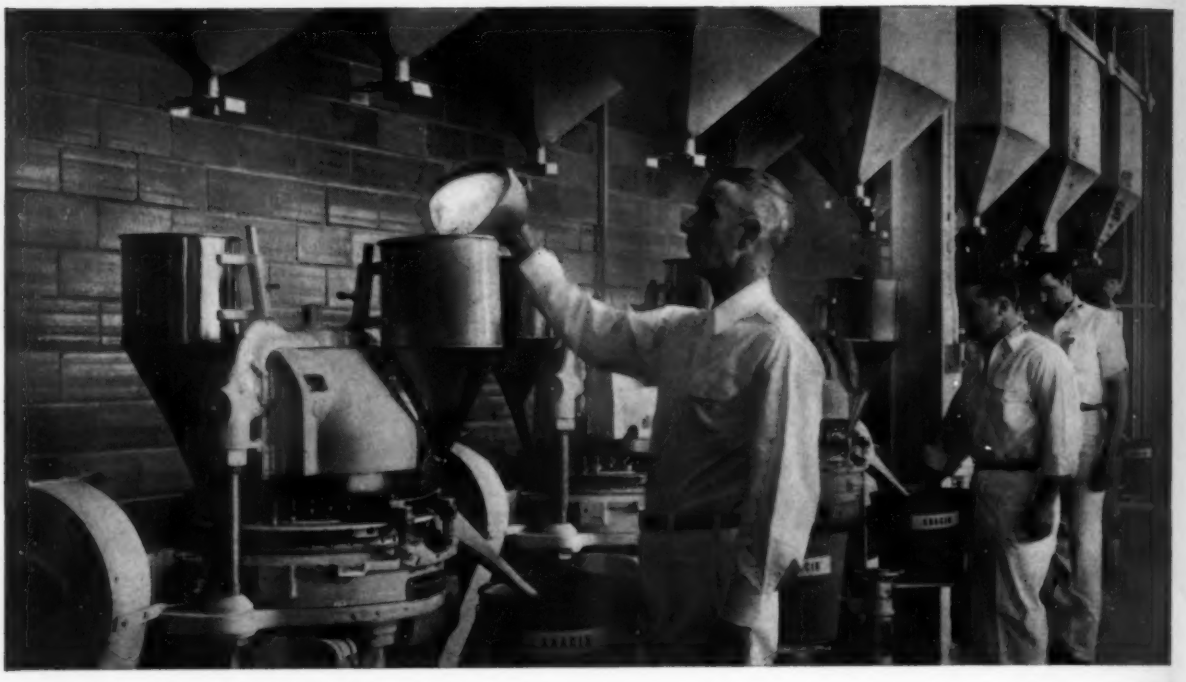
"Glycerine—Preferred for Product Conditioning" is the title of a 20-page booklet published by the Glycerine Producers Association, 295 Madison Ave., New York 17. Discussed in the booklet are the major factors in choosing an agent that will prevent products from hardening or "drying out," and will maintain necessary flexility, softness or controlled viscosity in products: nonvolatility, viscosity characteristics, solubility and solvent power, compatibility with other ingredients, chemical stability, non-crystallinity, non-toxicity, and taste and odor. Glycerine is compared with other conditioners, physical data being given in charts and tables where appropriate. Also covered are glycerine derivatives, principally monoglycerides.

Magnus Catalogue

Magnus, Mabee & Reynard, 116 Desbrosses Street, New York 13, has issued its catalog in a new and attractive form. The page size is much larger and the entire change is one that will give much satisfaction to the user.

Alcohols

A new 52-page book describing alcohols has been issued by Carbide and Carbon Chemicals Company, 30 East 42 Street, New York 17. Discussed in detail are 20 alcohols sold in commercial quantities by the company. The book has been prepared as a handy reference for people in the chemical industry. Used and suggested applications of alcohols, their physical properties, shipping data, specifications, test methods, constant-boiling mixtures, and a list of selected references in technical literature are included.



2,500,000,000 Anacin Tablets per year

Big names in tablet production look to Stokes for the presses which combine high production capacity with the unfailing reliability proved by years of experience. Many Stokes presses are known to have run steadily for 20 to 30 years with little or no maintenance.

Whitehall Pharmacal Company of Elkhart, Ind., uses a battery of nine Stokes model BB-2 rotary tabletting presses to produce its widely known Anacin Tablets. Eight more Stokes BB-2 presses now producing other Whitehall products can be called into service at any time to produce a total 2,500,000,000 Anacin Tablets per year on the basis of one eight-hour shift, if such production were needed.

Whitehall's familiar symbol is clearly embossed on each Anacin Tablet as it passes through the Stokes press. Finished Anacin Tablets are accurate in weight, uniform in density, attractive in appearance.

For production by the hundred or the million, Stokes has the right machines and proved techniques to help you realize practical and profitable manufacture. Stokes Advisory Service is available, at no obligation, to help solve problems concerning tablet formulas, punch and die design, and improved operating procedures.

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Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Union Now

The time has come to sound the tocsin for the merger of all three drug manufacturers associations: the ADMA, the APMA and the Proprietary Association into one United Drug Manufacturers Association. This association should have three divisions: ethical, proprietary and veterinary.

The members of all three associations now have common interests and, indeed, the associations have some common memberships. Time was when the separate associations had separate purposes and individualities but these distinctions have been almost wholly lost. All three associations have a common interest in research, control, freight rates, marketing and distribution costs, legal problems, personnel problems, governmental restrictions, production and so on almost all the way across the board. In fact so interdependent have such common interests become that joint contact committees have been established to work in unison toward common goals.

There was a time in the history of the trade when you'd never see a proprietary manufacturer at an ethical manufacturer's convention. But that's not so any more because the proprietary firms own a good many of the ethical houses. And vice versa.

But the ethical houses as a rule never published the fact that they owned proprietary firms or divisions. It would have been like admitting the existence of illegitimate children. Squibb however always had a proprietary division. So did Schering. Of course, when you lay the cards face up on the table, all ethical manufacturers like proprietary sales—those *not* prescribed by doctors—and if a law were ever passed making it illegal for a druggist to sell any product of an ethical manufacturer, whether it was an aspirin tablet or an antibiotic, there would be a hell of an uproar from the ethical manufacturers, and, if such a law could be made to stick they would lose probably half their business. But let's not think about that any more. It makes you shiver (that is if you're an ethical bloke).

Regardless of how it is conducted there will always be a proprietary drug business. The common household drugs and combinations of simple drugs will always be sold that way. In the past twenty-five years the proprietary people have become holy. They no longer sell snake oil and jinseng root for cancer (though God knows from the really little progress we have made in cancer research, they may have been right after all!). The proprietary boys have got religion and the sanction of that religion consists of two devils: one known as FDA and the other FTC. So now the proprietary people are doing as good a job as is done anywhere in product control, and, in research, they are doing as much on an equivalent size basis as their ethical counterparts. Besides the proprietary folks own a good many of the ethical houses, so, what's the real dif. between them anyhow? In the last analysis they are both after the same dollar and it costs them both about the same to get it.

Let's look now at some of the inconsistencies in the trade associations as they are now. The ADMA consists of the larger so-called ethical firms. These firms never advertise directly to the public but are not above an occasional page in the Saturday Evening Post telling us (in four colors) how wonderful the doctor is or how smart the druggist is and how much Gulch Company's products made them that way.

Consistency is a virtue they say but I doubt if it applies to ADMA membership. The Norwich Pharmacal Co. is frankly and forthrightly a proprietary house but it has always been a member of the ADMA. Some years ago Norwich spawned a lusty ethical offspring, Eaton Laboratories, which incidentally is neither a member of the ADMA or the APMA.

Squibb has always been a lusty public advertiser. Its proprietary division has always been its priceless ingredient profitwise (along with its cosmetic division, Lentheric, also proprietary). And Squibb is one of the founders of the ADMA and a member in very good standing.

FITCH and PNEUMATIC

BOTH *designed* TO KEEP TROUBLE OUT OF YOUR HAIR!

View of Pneumatic Close-Coupled bottling lines in production of FITCH hair preparations at new plant of Grove Laboratories, Inc., St. Louis, Missouri.

Grove Laboratories have been "expanding", so to speak, since they started business at Paris, Tennessee in 1889. In 1949 they acquired the famous FITCH hair preparations and added this business to their flourishing line of proprietary cold remedies.

To enlarge production capacity, Grove built a brand spanking new plant of modern design and has occupied it since 1952. As part of a progressive program to step up and *smooth out* production, Grove installed four Pneumatic Close-Coupled bottling lines to handle its FITCH output. The last word in automatic high speed cleaning, filling, capping and labeling equipment, these Pneumatic units deliver the goods without delay and with the very minimum of adjustment or attention. Down to the last detail they are designed to establish and maintain new high standards of "lower cost per container" performance. And they're doing it — day in and day out — here and elsewhere, in American's foremost factories.

PNEUMATIC SCALE CORP., LTD., 70 Newport Ave., Quincy 71, Mass. *Also: New York; Chicago; San Francisco; Los Angeles; Seattle; Leeds, England.*

★ PNEUMATIC

Packaging and Bottling Equipment

The ADMA always has had curious distinctions in its membership. The Association takes pride in not having any associate members but is not above letting Owens-Illinois foot the bill for a substantial part of the annual entertainment program. Owens-Illinois is a supply house and not a member of the ADMA. They supply bottles. But other suppliers *are* members of the ADMA. S. B. Penick supplies drugs and chemicals in bulk to all branches of the trade but is not in the consumer package business. But Penick is a member of the ADMA. Likewise Monsanto, Heyden and Dow—all purveyors of bulk medicinal chemicals to all branches of the trade and none is a purveyor of packaged consumer goods but all are members of the ADMA.

In the APMA on the other hand such firms, large and important though they be, are all associate members. But they still have the honor of footing the major part of the entertainment bills, thank God.

Now, the ADMA and the APMA sell substantially the same products through identical channels to the same people. Their veterinary divisions likewise have identical interests. The proprietary people sell substantially similar products in a limited number of categories over the heads of the doctors and veterinarians to ultimate consumers. But all function through the same wholesalers and the same druggists in serving the public. It is odd that the two classes of manufacturer should stand apart at the top management level, yet all belong to the same wholesalers associations and they seem to sleep comfortably in the same bed at the wholesale level. Why not at the top?

There is a real need for the merger I have outlined. There are too many overlapping conventions. Too much time and money are wasted by key executives in going to conventions to hear the same things—sometimes from the same people. As United Drug Manufacturers we could have a more powerful voice in the affairs of the country and of the world than we can under the present organizational plan. We could use a united association more fruitfully in the governance of our affairs than we can now.

The drug industry has grown up and it is high time we had a single organization big enough to handle its intercompany and public affairs with power and dispatch. Let's stop talking about duplication in government until we have eliminated expensive duplication in the conduct of our own affairs.

Controllers

There must be something sour in a man's genes that makes him like bookkeeping. The controllers I know are hell on figures. Some of them are so addicted to figures that even their wives must keep accurate books and live according to detailed budgets. To be a controller's wife must often be a fate worse than death. I've had controllers show me their household budgets. They took immense pride in the fact that their budgets always balanced. Talk about a busman's holiday! The poor wives, God help them!

Controllers have one thing in common: they know more about the businesses they are connected with than anyone else including their presidents. They don't waste much time letting you know that either. They know more about marketing than the marketing guys; they know more about production than those poor worms, the production men. They have the figures; they know it all. Only the chemists have the Indian sign on them. I've never met a controller yet who intimated he knew more about chemistry than the chemists. The chemists simply don't speak their lingo.

The office of controller is sacrosanct. Unlike marketing, production and research men, the controller never needs to stake his job on his performance. He never needs to make a commitment that puts him out on the end of a limb. He can never be blamed for anything that goes wrong in the business and unless his financial statements are grossly inaccurate, inadequate, incomplete or chronically untimely his job is always safe. He always enjoys the benefit of hindsight. He is a historian of other men's performances. He can always look wise after the event. He can always say "I told you so"—and generally does—even when he didn't.

Controllers are always after us to meet budgets; to cut costs. Controllers are supposed to analyze figures and show us how to make more money from capital invested. But I wonder. I've noticed over the years that, as production and marketing requires less and less people, office functions—the controller's department—require more and more. In many firms there are as many office people as production people and in some firms many more. You will read daily in the newspapers of lay-offs in production and research personnel. But did you ever hear of a layoff of bookkeeping personnel? Never! The books must be kept up to snuff come hell or high water. The records must be kept even when there is no business to record.

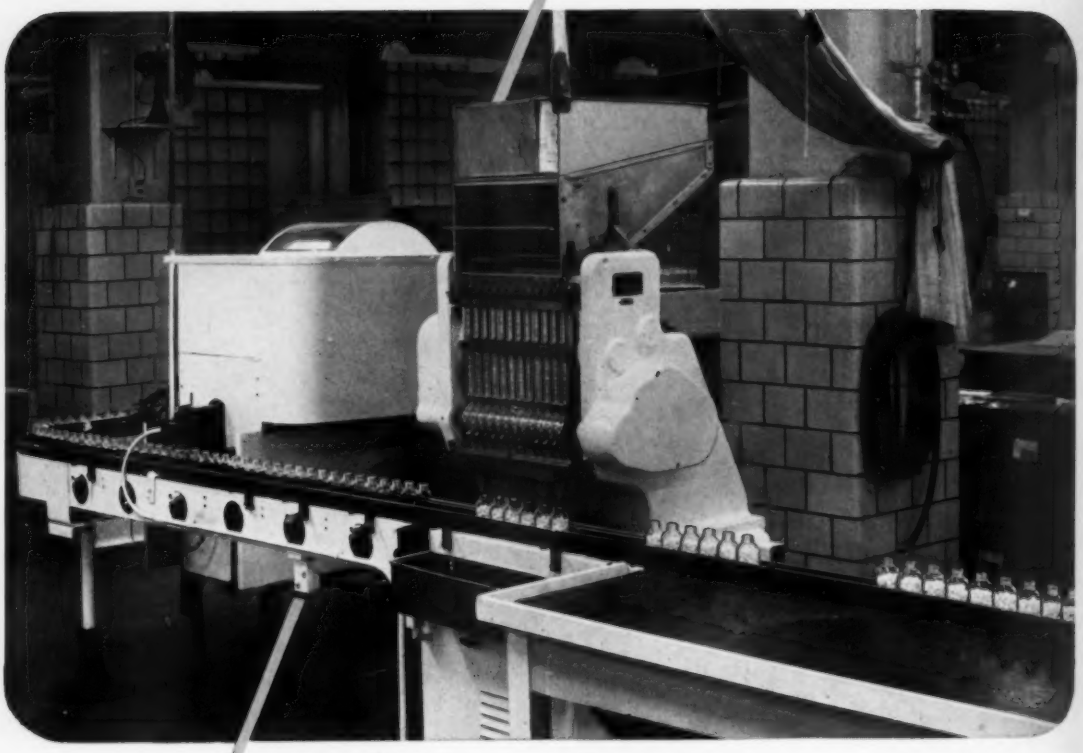
Controllers—bookkeepers on the PhD level—are necessary unfortunately. Uncle Sam's taxes are responsible. But I must confess I yearn for the days when the main concern of business was to make the stuff and sell it at a profit. How happy our predecessors must have been in the years before 1914 when there were no controllers, few accountants and only a few bookkeepers. The first world war opened Pandora's box and released upon us a buzzing swarm of bookkeepers, auditors, accountants and controllers. Every college spawned them by the thousands. And they call this "higher education!"

Glass Lathe

A new type of glass lathe has been developed that meets an unusually broad range of glassworking requirements in the laboratory and general industry.

This machine, known as the Bethlehem Lab-Lathe and manufactured by the Bethlehem Apparatus Co., Inc., Hellertown, Pa., is the first of its kind designed

again the choice is US



Model TBS Automatic Fills 160 Empirin 25-Tablet Bottles in a minute at Burroughs Wellcome!

Burroughs Wellcome & Co. of Tuckahoe, New York, uses several Model TBS Automatic Tablet Filling and Counting Machines to package their well-known Empirin Tablets. The company uses several bottle sizes—and finds that Model TBS machines are ideal for many operations because they are easy to change over for different counts and containers. The machines' specially designed tablet handling mechanism virtually eliminates breakage or powdering.

Model TBS Automatic Tablet Filling Machine in the 12 chute model will fill bottles, cartons or cans with any desired number of pills, capsules or tablets—counting and inserting them at rates of 160 per minute on 25 count or less,and up to 100 per minute on larger count containers.

Model TBS machines are available with many modifications to suit either mass production packaging of a single pharmaceutical tablet or speed packaging of a varied line of products. For complete details, write **US.**

PACKAGING MACHINERY MANUFACTURERS INSTITUTE PMMI MEMBER

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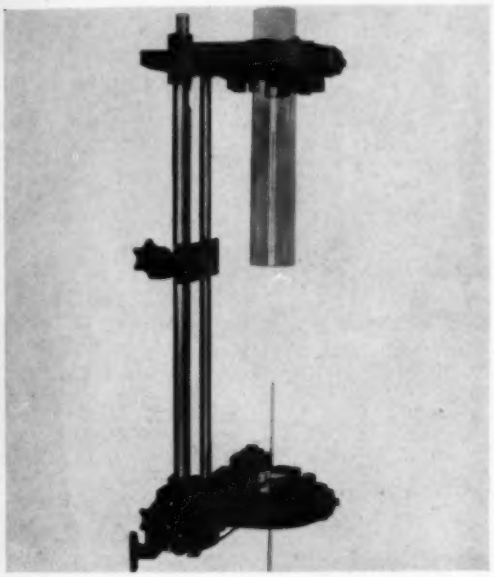
for specialized glass work in the laboratory and certain types of production operations. It can be used to make ring seals, tees, flanges, tapers, glass fusings, closures and a variety of repairs.

A unique sleeve-grip chuck permits quick set-ups of practically all forms of glass work without elaborate accessories. Tubing of any length up to 100 mm. diameter can be mounted through the spindle. Extension bars grip a variety of glass shapes in sizes up to 12" diameter with eccentric settings made as required. The unit can be adapted for use as a vertical lathe.



Extra accessories are not needed for this lathe except for special purposes or where large scale production of identical parts is desired.

The apparatus is constructed for exact and permanent centering, and for greatest possible operating convenience. The floating tailstock with finger-tip control eliminates backlash and is detachable when large pieces are worked on the headstock. It is provided with an automatic brake, floating burner carriage, non-warping bed, pinion-bar drive the full length of travel, and a 1/12 H.P., A.C. 115-volt motor mounted on the lathe bed. Normal chuck speed is 32 R.P.M.

Length between the chucks is 36 inches, radial clearance 8 inches, and the through-spindle diameter 4 inches. Net weight, 150 lbs.

MRM Automatic Nitrogen Depositing Machine

Complete displacement of trapped air in filled containers to eliminate a common contamination problem is the function of the new MRM Company's Automatic Nitrogen Depositing Machine. The need for such a machine is particularly great for firms filling food or drug products that are subject to contamination created by the air trapped in air pockets. Unfortunately, up to now, exceptional losses were experienced by packers because of limited shelf-life of their products due to spoilage.

With the development of the nitrogen depositing machine, a stainless steel nozzle fits over the mouth of the container and emits a stream of nitrogen gas downward forcing out trapped container air through a separate opening. The MRM machine is designed to keep loss of nitrogen gas to an absolute minimum. Nitrogen pressure is controllable and shuts off automatically when machine is stopped.

The machine fits into any production line and requires no skilled help to operate. It can be changed over from one size container to another in a few minutes and will handle container sizes from fractional ounce to gallons.

Designed and manufactured by MRM Company, Inc., 191 Berry Street, Brooklyn 11, New York.

Mercury Heat Sealing Equipment

An improved new model of their Vacumatic Heat Sealing and Labeling Machine for cellophane, polyethylene and pliofilm bags is now being introduced by The Mercury Heat Sealing Equipment Company of 331 N. 11th St., Philadelphia.

This machine will automatically take a label up to 11" wide, drop it over the top of a bag, then fold and seal both bag and label at the same time, eliminating the necessity of two separate operations.

The new Vacumatic introduces four new ingenious devices that eliminate all the ordinary difficulties previously experienced in automatic label feeding operations. The first of these is an exclusive feature that times the release of the label to correspond with the speed of the operator, thus achieving maximum production.

A second feature controls the pick-up of the label in such a way that it virtually eliminates the possibility of two labels being put on the same bag. The third improvement is an adjustable feeding device that drops the label in exactly the right position for best operation, permitting perfect control of labels that may be slightly curled.

IN MIXING EQUIPMENT

DAY means longer life span

DAY 100-gal. gearless type pony mixer at Eli Lilly & Co., Indianapolis, Indiana

✻ DAY combines rugged construction with precision engineering. That's why DAY Pony Mixers are delivering *extra* years of trouble-free, economical operation in plant after plant. DAY features result in higher production at a lower cost, protect the quality and uniformity of your product. An important feature is the interchangeable can unit—eliminates delay between batches. Lift truck with hand pump hydraulic lift unit is optional equipment. DAY planetary mixing action plus agitator blade contouring delivers radial and lifting mixing action over depth of can. DAY rugged construction is unique. A one-piece heavy cast iron frame assures absolute rigidity, quiet operation. Mixers are driven by time-tested internally geared head motors through roller chain and sprockets enclosed in dust tight guards, exclusive with DAY. Whatever your requirements, there's a dependable DAY pony mixer engineered to do your job — better — more economically. For complete information, call your nearest J. H. Day field engineer, or write direct for Bulletin 500.

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INTERCHANGEABLE CAN

DEPENDABLE DRIVE

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when you buy **DAY** *you buy dependability*

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PRODUCERS OF QUALITY EQUIPMENT FOR BAKING • PAINT & VARNISH • CHEMICAL FOOD • RUBBER • PHARMACEUTICAL • COSMETICS • PAPER & PULP • EXPLOSIVES CERAMICS • CANDY • SOAP • SUGAR • MILK PRODUCTS • OTHER MAJOR INDUSTRIES

The fourth new improvement is an exclusive control that automatically prevents the sealing jaws from closing more than once in any sealing cycle, preventing accidental spoilage through double seals.

The Vacumatic is also fully adjustable for folding a label in any practical manner, such as in half or with one side longer than the other. It can also be adapted to completely automatic conveyor operation by the addition of a specially designed feeding table. Ruggedly built to withstand years of hard use, the Vacumatic employs a full-scale vacuum pump, built into its own self-contained base, to provide trouble-free operation at all times and under all conditions.

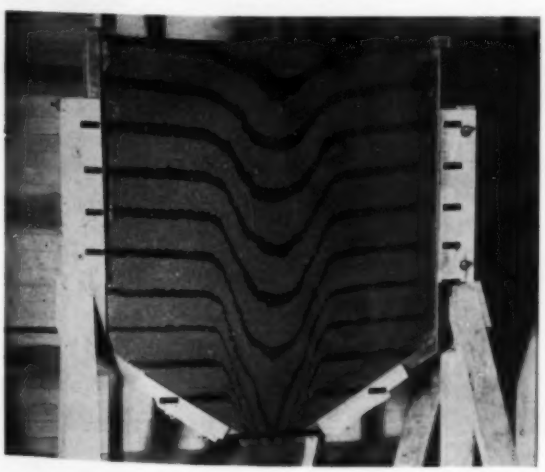
Solids Flow in Bins

The flow of solid materials in chutes, bins and hoppers is currently being investigated here at the research laboratories of the Richardson Scale Co., Van Houten Ave., Clifton, N. J. Before long, the company hopes to evolve a general equation for the flow of solids in any bin of symmetrical shape, which should be of considerable use to bin designers.

Engineers know a lot about how liquids behave in motion, but little about the characteristics of solids in flow. Significantly, there is not much known about the flow of solids in bins and similar vessels. Information is largely restricted to a few materials in large cylindrical silos, the flow of earth in dams and retaining walls, and occasional data on some materials in a few types of bin configurations.

So far, research engineers at the lab have collected considerable information on the pressure exerted by different materials on the bin discharge opening. They have also collected much on the lateral and vertical pressures existing at different points within the material mass.

To test equations and theories evolved, the solids-flow laboratory is equipped with a hydraulic load cell and a series of varying bin sections. With the arrangement, engineers are able to closely study the relationship between various heights of material in a bin and the pressures at the discharge opening.



A model bin section with variable side slopes was constructed to permit the observation of typical flow within a bin. A plate-glass front on the cross-section allows direct observation. Photographs and motion pictures have been taken of numerous flow runs and filed for future reference.

Another piece of original equipment built for the lab is a machine called a K-determinator. With the machine, it is possible to evaluate the relation between lateral and vertical pressure for various materials under load conditions in a bin.

Co-Current Extractor

National Research Corporation is now offering a complete brochure describing the NRC Mix-and-Settle Extractor. This extractor, developed by Professor M. R. Fenske of Penn State College and Mr. R. B. Long, now of Standard Oil Development Company, is manufactured by the Equipment Division of National Research Corporation as the exclusive licensee of Standard Oil Development Company authorized to design, build, and sell the extractor.

The NRC Mix-and-Settle Extractor has these unique features:

1. Although gross flow of the two liquid phases is, of course, counter-current through the column, the flow is co-current after mixing and during settling on each stage.
2. The intensity of the mixing of the two phases is independent of throughput and can be controlled and varied at will.
3. Theoretical equilibrium can be obtained on each stage and samples of each phase can be taken from each stage.
4. Assembled by stacking special castings one on top of another, as many as 30 stages can be assembled in one compact unit; the height of the main body of a 20-stage extractor, for example, is only 36 inches. The throughput to holdup ratio is high.

Developed originally for the petroleum industries, the extractor is also of great utility for the chemical, petrochemical, pharmaceutical, and fine chemical industries. The Model 1703 Mix-and-Settle Extractor is a 20-stage unit made entirely of stainless steel and Teflon. It is suitable for product and process research and development as well as for many commercial operations.

The complete brochure on the NRC Mix-and-Settle Extractor is available from Department M, National Research Corporation, 70 Memorial Drive, Cambridge 42, Massachusetts.

Aerosol Loading Machine

A new type high accuracy propellent loading machine for manufacturers of aerosol-dispensed products was recently announced by Oil Equipment Laboratories, Inc., manufacturers of Pres-O aerosol valves for spray

"The NEW Installations are COLTON"

COLTON TABLETING EQUIPMENT AT GOLD LEAF PHARMACAL

"Four years ago we expanded our tableting facilities and purchased the new Colton No. 216 Rotary Tableting Press.

Subsequently, . . . we purchased three more and have been more than delighted with their operation.

Compared with other presses which we have, your No. 216 Rotary Tablet Press handles many jobs which we were unable to handle previously—and, with a 50% increase in productive capacity. (Up to 900 tablets a minute.)

They are very economical to run and very rugged in taking abuse. Also, we are very pleased with the field service which we receive from your company. On many occasions we had to have punches and dies or replacement parts on short notice and got them without delay."

M. Gold, Vice-President

In a business involving many products, Colton small machines are better than big ones because of flexibility, versatility, high speed, early amortization of all costs.

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and foam dispensing of cosmetics, lacquers, shaving and whip creams, insecticides, paints, etc.

With this new equipment it is possible to load up to 10,000 containers per day, per head, with a high degree of accuracy, a propellent loss of less than two per cent and a sharp cut in loading costs.

The equipment is compact, light and portable, the individual unit requiring only about 15 square inches of space. It may be used in conjunction with a conventional liquid filler and it operates on 110 volt, 60 cycle current and an air hose carrying 100 pounds pressure.

Equipment for foam products has been in successful use for some time. Extensive tests for large spray containers holding over 300 grams of propellent have been made in the plant of a large aerosol producer and are said to have yielded highly satisfactory results.

The equipment may be seen in operation at the Elizabeth, New Jersey, plant of Oil Equipment Laboratories, Inc.

Powered Hand Trucks

Clark Equipment Company, Buchanan, Michigan, a leading manufacturer of materials handling equipment, has announced the production of its new "Powrworker 26" line of powered hand trucks.

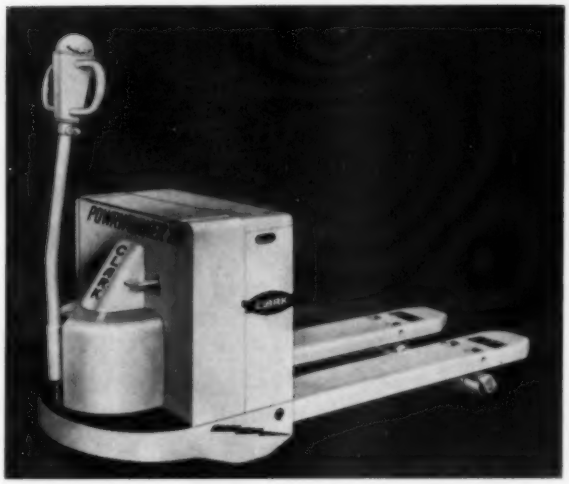
The Powrworker 26 has an overall length shorter than any other standard truck on the market, according to Clark. This was accomplished by reducing the maximum "lost length" to 26 inches, or a truck only 26 inches longer than the length of the load being carried.

The new line includes low lift pallet and platform trucks in both 4000-lb. and 6000-lb. capacities; telescopic tilting fork trucks in base capacities of 1500, 2000, 2500 and 3000 lbs., all at 24-in. center line or 48-in. load length; as well as walk-it-or-ride tractors designed for either slow or high speeds. All of the trucks in the line can be ridden by the operator.

Design features incorporated in the "Powrworker 26" models make for unusual maneuverability, high load stability, operator convenience and simple and quick maintenance, according to the manufacturer. Special safety features, based on the indicated requirements of powered hand truck users, have also been included.

A low center of gravity for load stability has been obtained by placing the battery in an underslung position. Load stability is also furthered by use of a six-inch-wide, 10½-inch-diameter drive wheel.

A number of features have been incorporated in the Powrworker 26 line for improved operational safety. For instance, the brake, which operates on the motor shaft, transmits its action through a gear reduction of 22 to one. Further, the brake is spring applied and actuates a "deadman" switch that automatically breaks the power circuit when the steering handle is in a vertical or horizontal position. To avoid an obstruction hazard, the steering handle automatically returns to the vertical position when it is released by the operator.



The control box and tubular bayonet type control handle are a welded assembly mounted on the steering handle, and provide two speeds forward and reverse through defined notched positions. Speed and direction are selected by a spring loaded finger-tip walking beam or butterfly valve built into the control box. It is not possible to direct forward and reverse current simultaneously to the drive motor. Electric braking action is provided by power reversal in first speed through the full value of resistance.

Driving and hoisting motors are series wound, high torque type, ball-bearing equipped and horizontally mounted for maximum operational efficiency. Wiring between control and motors is direct to the power source. For maximum electrical efficiency, commutators and long flexing wires have been eliminated. The drive motor is geared directly to the drive wheel axle through a double reduction of spur gears.

Gears are drop forged alloy steel, heat treated and crown shaved for quiet operation and long life. The complete gear train is mounted on ball and roller bearings and operates in an oil bath in a totally enclosed housing.

To provide steering ease regardless of load or operating conditions, the drive unit is supported in the truck frame by an arrangement of wide-spaced thrust and radial roller bearings.

Powrworker 26 chassis frames are fabricated from plate and bar steel, formed to shape and electrically welded into a unit structure, designed to provide great strength and rigidity with minimum weight.

For easy service and maintenance, all operating units are readily accessible without dismantling the truck. A standard, 10½" x 6" x 5" I. D. readily demountable tire is used for the drive wheel. All maintenance work can be done with simple mechanic's tools, eliminating the need for hydraulic press fits.

Detailed information on the Powrworker 26 line of trucks can be obtained by writing to the Clark Equipment Company, Industrial Truck Division, Powrworker Section, Battle Creek, Michigan.

Tablet coating

BY RONALD CLARKSON—TABLET CONSULTANT

At Last—A practical, authoritative textbook on Tablet Coating!

This is the answer to a world-wide request for a down-to-earth book on this highly specialized technique.

The author, Ronald Clarkson, an outstanding tablet consultant, is well known in this country and abroad for his contribution to technical literature on Tablet Manufacturing. Co-author of the text book *Manufacture of Compressed Tablets*, he has also presented papers on various phases of tablet manufacturing before the APMA production meetings.

Since entering the consulting field he has been a contributor to *Drug and Cosmetic Industry*.

In his capacity as a consultant the author has been supplying coating instructions to his clients in various parts of the world at a substantial fee. This confidential copyrighted treatise was entitled *The Fundamental Procedure for Coating Tablets* and forms the basis for this text.

The original treatise has been greatly expanded and here it is at a fraction of the original price!

A Valuable Aid to Everyone interested in coating tablets

- Production Managers
- Sales Managers
- Coaters (experienced and inexperienced)
- Development and Research Men
- Beginners
- Students

A Technical Book filled with Formulas for

- Subcoating Syrups
- Dusting Powders
- Colored Syrups
- Polishing Solutions
- Protective Coatings
- Coatings for Tropical Climates
- Enteric Coatings

In addition to the valuable formulas, complete directions for their preparation are given—even to such minute details as the temperatures at which they should be used.

Detailed instructions on how to reclaim spoiled tablets are outlined.

An entire chapter is devoted to installing a coating department—recommendations being given regarding the proper size and type of equipment, operating capacities, dust control and hot air systems—also how to lay out a complete coating department, including blueprint floor plan.

All extraneous matter has been omitted. This book deals 100% with the details of actual coating—how to do it and produce satisfactory results.

Here is the first book of its kind ever published. Complete, simple, and easy to follow instructions on what to do and what *not* to do. It will prove invaluable to you as an instructive text, and as a ready reference.

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Dry labeling on the CHAMPION and CHALLENGER is PUSH-BUTTON, non-stop, constant-motion, *precision* labeling . . . It's

Labeling *without glue!*

superb performance with round, tapered or flat containers.

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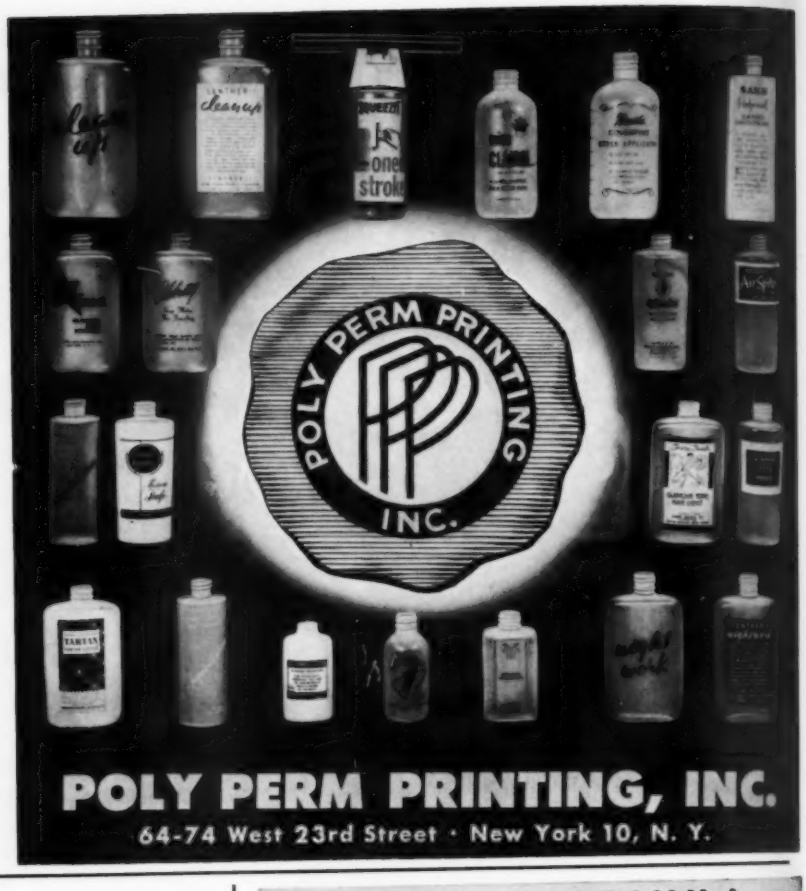

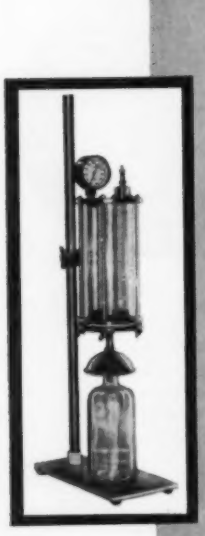

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Advancing Therapy

Vitamin D_2 in Chronic Skin Diseases

The value of vitamin D_2 in the treatment of nontuberculous chronic skin diseases is shown in the studies made by E. A. Strakosch (*Arch. Dermat. & Syph.* 67:496, 1953). In his investigations, the effect of vitamin D_2, calciferol (Drisdol) on atopic dermatitis, psoriasis vulgaris, acne conglobata, lichen planus, granuloma annulare, and keloids was investigated in 108 patients over a period of two years. The drug can safely be taken by all age groups for a relatively long period of time, provided the proper safeguards are observed.

The results attained in atopic dermatitis were very encouraging. Forty-two out of 57 patients with atopic dermatitis definitely benefited from the use of vitamin D_2 in high doses. The improvement became evident within three to four weeks of therapy with this drug. None have been cured. The treatment should be abandoned if there is no response within three to four months. It appears that this drug might be a very valuable adjuvant in the management of this, therapeutically so troublesome, condition. The results in the treatment of psoriasis were encouraging enough to warrant further study on a large group of patients; the same study should be done in acne conglobata and lichen planus, since a definite favorable response was observed in these conditions. The drug appears to be of no value in treatment of granuloma annulare and keloids.

Piperazine for Threadworms

A comparative study made by R.H.R. White and O. D. Standen (*Brit. Med. J.* 2:755, 1953) indicates the value of piperazine, used in the form of piperazine hexahydrate embodied in a flavored syrup, in the treatment of threadworms in children. The results obtained from the clinical trial of piperazine hydrate, gentian violet, diphenan, and a lactose placebo as control showed that while gentian violet had a marked oxyuricidal effect (70 per cent cures) at a dose level of 11 mg. daily per year of life, this was well surpassed by piperazine hydrate syrup when the dose level was in excess of 50 mg./kg. per day, and the cure rate reached 97 per cent. Though diphenan gave a cure rate of 17 per cent at a dosage of 100-600 mg. daily per year of life, this apparent oxyuricidal effect was discounted by the fact that 19 per cent cure was obtained with a lactose placebo control. The latter indicated that a spontaneous clearance of threadworms may be expected in approximately 19 per cent of infections. Thus piperazine hydrate syrup proved to be the most effective, while producing negligible side-effects. Gentian violet was less effective, and was also undesirable on account of its nauseating effects and staining properties. Diphenan was ineffective. It is concluded that piperazine hydrate, at a dose level of 50-75 mg./kg. per day, is the drug of choice for the treatment of oxyuriasis in children.

Liver Extract and Vitamin B_{12} in Children

Liver extracts combined with vitamin B_{12} were used by A. Masi and S. Mori (*Minerva Pediat.* 5:290, 1953 through *J.A.M.A.* 153:1129, 1953) to treat 30 children with acute disease of the respiratory and cardiovascular apparatus. Atrophy, denutrition, asthenia, anorexia, and a pale color of the skin and mucous membranes were present in all these children. The disease had a tendency to become chronic despite the antibiotic, anti-infectious, and dietetic therapies that had been instituted. A first group of 15 infants, three to 15 months old, were given 1 Gm. of liver extracts and 15 mcg. of vitamin B_{12} orally at breakfast every day for 20 to 25 days. The therapy was well tolerated, and there were no disturbances of the gastrointestinal apparatus. The infants gained appetite and weight. Their general condition improved, and the blood picture revealed an increased number of erythrocytes and higher levels of globulin and protein. Only a few of them, under six months of age, did not benefit from the therapy. The second group of 15 children, two to 15 years old, received 2 Gm. of extracts of fresh liver and 15 mcg. of vitamin B_{12} intramuscularly every other day for 20 to 25 days. The injections were always painless and never caused allergic reactions. The cytochemical changes in the blood picture were superior to those obtained in the first group of patients. There was an increased number of reticulocytes and erythrocytes and higher levels of globulin and protein. The action of the two products was reciprocally enhanced. In fact, oral administration of vitamin B_{12} alone produces only an increase of appetite and, therefore, of weight, whereas when it is combined with liver extracts there is also a slow but progressive and beneficial modification of the blood picture.

Mood-Ameliorating Agents in Obesity

The value of mood-ameliorating agents in the treatment of psychogenic obesity is indicated in the study made by P. Rosenberg (*Amer. Pract.* 4:818, 1953). In this work, 94 obese, highly nervous or depressed patients whose case records indicated that treatment with amphetamine sulfate alone would be of more limited value, were treated with a combination of *d*-amphetamine sulfate and amobarbital for appetite control in addition to a low calorie diet. Eighty-five (90 per cent) of the patients demonstrated a definite improvement in mood accompanied by a satisfactory reduction in weight. There seemed to be a relationship between the mood effect of the compound and the efficacy of the diet therapy. Nine patients were not notably helped. One of these seemed to be in need of extensive psychiatric treatment.

Twelve hypertensives were included in the study. In all cases but one, where there was a slight rise, the blood pressure dropped.

Hence, Rosenberg concluded that *d*-amphetamine sulfate plus amobarbital, because of its mood levelling, anorexigenic effect, is a valuable aid in

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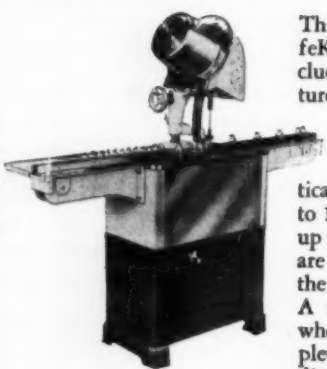

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Oral Procaine for Gastrointestinal Symptoms

A study was made by B. J. Oren (*South. Md. J.* 46:946, 1953) of 38 consecutive office patients with heartburn and other functional complaints associated with increased muscle tone in the upper gastrointestinal tract, using oral procaine in an attempt to relieve their symptoms. Eighteen patients were entirely relieved symptomatically of heartburn and epigastric fullness. Six obtained partial relief, while 14 either had no relief at all, or had aggravation of their symptoms.

Procaine in 80 mg. dosage has a stimulating effect upon acid secretion in the stomach, similar to that of 50 cc. of seven per cent alcohol. Hence, says Oren while procaine may temporarily relieve smooth muscle spasm in the upper gastro-intestinal tract by direct contact with the overlying mucosa, its use appears to be contra-indicated in peptic ulcer disease.

Prantal Methylsulfate in Vomiting of Pregnancy

As noted by E. Eichner (*Obstet. & Gynec.* 2:517, 1953), block of the celiac axis and the stellate ganglia has been reported as successful in the treatment of vomiting of pregnancy. With this rationale in mind, it was decided to evaluate an anticholinergic drug in patients with vomiting due to early pregnancy. One of these drugs, Prantal (N,N dimethyl 4-piperidylidene 1,1 diphenyl methane) methylsulfate, acts primarily on the parasympathetic ganglia associated with gastric secretion and motility.

In a comparative study, 206 patients suffering from nausea and vomiting of pregnancy were divided into five groups. Each group was given a different mode of therapy. Those patients who failed to respond favorably were placed in a succeeding group. The first group received derivatives of amphetamine. Sedatives, hypnotics, and antihistaminics were given the second group. Antispasmodics, with or without added sedation, were given to members of the third group, whereas the patients in group four received injections of vitamin B complex containing at least 100 mg. of pyridoxine hydrochloride per cc. In the fifth group a total of 76 patients received Prantal methylsulfate. Fifty-eight patients obtained complete relief, while treatment failed in eight. Ten patients discontinued therapy too early for proper evaluation of their response to the drug.

A consideration of the data showed that all of the drugs tested provided complete relief in over half of the cases. Prantal methylsulfate showed the highest percentage of cures, and was effective in those cases not responding to other drugs used in this study. It is concluded that Prantal methylsulfate deserves further study as a drug offering a new approach to the control of nausea and vomiting of pregnancy.

Treating Infantile Diarrhea and Vomiting

A large working party under the chairmanship of R. H. Dobbs (*Lancet* 2:1163, 1953) has assessed the value of antibiotic and chemotherapeutic agents in the treatment of infantile diarrhea and vomiting. In this study controlled trials of aureomycin, chloroamphenicol, and sulfadiazine in the treatment of these disorders were made at 10 centers in Gt. Britain during 1950-52. The trial drugs were administered by mouth in doses of, respectively, 75 mg., 75 mg., and 125 mg. per pounds body-weight a day for seven days. A total of 1168 cases (789 mild, 379 severe) was included in the analysis of the results. Infants found to have either salmonella or shigella infections were excluded from this analysis. The numbers in the different treatment groups were 154 aureomycin-treated, 415 chloramphenicol-treated, 247 sulfadiazine-treated, and 352 controls. The mean fatality-rate was 2.8 per cent.

Clinical progress after the start of treatment was assessed on the following criteria: average duration of diarrhea, average time to full clinical recovery, and proportion of mild cases which became severe. The aureomycin-treated group progressed more favorably than the controls as regards the proportion of mild cases which became severe but not as regards the two other criteria. The chloramphenicol-treated and sulfadiazine-treated groups progressed more favorably than the controls as regards all three criteria. The progress of the sulfadiazine-treated group was significantly better than that of any other treatment group.

It is noted that more than half the controls made straightforward progress to recovery without chemotherapeutic or antibiotic treatment. Nevertheless the proportion of mild cases becoming severe was significantly greater in the control group (14 per cent) than in the aureomycin-treated (four per cent), chloramphenicol - treated (three per cent), or sulfadiazine-treated (four per cent) groups. This finding suggests an important use for these drugs in the prevention of clinical deterioration of mild cases not responding readily to routine methods of treatment. Moreover the administration of sulfadiazine or of chloramphenicol, but not of aureomycin, was shown to reduce the average duration of illness in both mild and severe cases.

Clinical Tests on Tetracycline

According to L. E. Putnam, F. R. Hendricks, and H. Welch (*Antibiot. & Chemother.* 3:1183, 1953, tetracycline, a new antibiotic is more soluble than chlortetracycline (Aureomycin) and under the usual test conditions is more stable than chlortetracycline or oxytetracycline (Terramycin). These three drugs are similar in their spectra of antibacterial activity. Tetracycline compares favorably with chlortetracycline and oxytetracycline in chick growth-promoting properties when mixed in the diet. The pharmacologic properties of these three antibiotics are generally similar. Because of the superiority in solubility and stability of tetracycline, it was felt that the product was promising. Accordingly, capsules and tablets were prepared for clinical trial.

In the clinical studies blood concentrations following various oral doses of tetracycline were compared with those obtained with similar doses of chlortetracycline and found to be quite comparable. Following multiple doses of tetracycline there appears to be an accumulation of the drug in the blood serum. Comparable blood concentrations are obtained following administration of tetracycline produced by either catalytic hydrogenation or by fermentation. Tablets of tetracycline cause more minor side reactions than do capsules prepared from the same batch of drug. Four of 217 subjects exhibited what may have been an allergic response to the drug. It was necessary to withdraw the drug from two of these. Nausea, vomiting, and diarrhea occurred in only 5.5 per cent of 217 healthy male subjects administered 2 Gm. of tetracycline daily for three days.

In 32 patients with miscellaneous infections, tetracycline appeared to be as efficacious as the other broad spectrum antibiotics.

Compounder's Corner

Preparations for Chilblains

In discussing the therapy of chilblains, D. I. Williams (*Practitioner* 171: 619, 1953) states that local treatment is required both to relieve the itching and pain of the condition and to prevent or control infection. Among the various preparations that may be used are methyl salicylate liniment, or a preparation such as the following, which is to be rubbed into the affected area each morning and night:

Phenol	**1.0 per cent**
Camphor	**6.0 " "**
Balsam of Peru	**2.0 " "**
Soft paraffin	**25.0 " "**
Hard paraffin	**7.5 " "**
Anhydrous lanolin, to make	**100.0 " "**

If the chilblains have broken down, Williams suggests the use of the following:

Phenol	**1.0 per cent**
Calomel	**2.0 " "**
Zinc cream (N.F., 1953), to make	**100.0 " "**

Noting that there are many possible alternatives to these preparations, he warns that any preparation which contains benzocaine or an allied anesthetic should be avoided, because of the very real risk of sensitization of the skin.

Hand Lotion

As cited in *Soap, Perfumery & Cosmetics* (26:1134, 1953), British patent 692,335, granted to Colgate-Palmolive-Peet Co., describes the preparation of cosmetic lotions, especially hand lotions. The patent states that such lotions should contain an emulsifying agent to bring about the desired emulsification in the first instance, and a stabilizing agent to ensure that the components shall be maintained evenly distributed throughout the emulsion and that when the lotion is applied to the skin it will make efficient contact with it. Claiming superiority over other materials used in lotion production, it is stated in the specification that the conjoint use of colloidal magnesium aluminium silicate and an alkali-metal carboxyalkylcellulose is particularly effective in enhancing stability and adhesion to the skin. A typical example of a hand lotion embodying the ideas of this invention is given as follows:

Water	**80.36 per cent**
Sodium carboxymethylcellulose	**1.00 " "**
Colloidal magnesium sauminium silicate (in the form of a gel)	**1.25 " "**
Borax	**0.54 " "**
Methyl p-hydroxy benzoate (preservative)	**0.15 " "**
Waxes (glyceryl) monostearate, spermaceti, beeswax)	**6.00 " "**
Vegetable oil, e.g., tristearin	**2.20 " "**
Perfume oil	**0.50 " "**
Alcohol	**8.00 " "**

Carotene from Palm Fiber Oil

For several years, report P. Blaizot and P. Couvier (*J. Am. Oil Chem. Soc.* 30:586, 1953) the laboratories of the Institut de Recherches pour les Huiles et Oleagineux in Paris have been very much interested in the study of extraction methods and the physical and chemical properties of carotene from palm oils which are produced in the French Overseas Territories, such as the Ivory Coast, Dahomey, and the Cameroons. Carotene is the ideal coloring agent for margarine. It is the natural pigment of butter and moreover plays a specific role in the animal organism as provitamin A. Thus its superiority over coloring agents without vitaminic power is obvious. Carotene was discovered more than a century ago in carrots which still are, besides alfalfa, an important raw material for the industrial preparation of carotene. However carrots and alfalfa, are very poor sources of carotene as compared to African palm oil.

As part of their investigations, Blaizot and Couvier made a study of the constitution of the oil which remains in the cakes of the fruit fibers. These fibrous oil cakes generally contain about 10 per cent of glycerides. Because of their high cellulose and lignin content and their low percentage of protein, they have no food value for animal feeding. In Africa they are used for fuel. Thus they are an almost valueless by-product.

After a series of tests, the investigators found that the carotene content of "fiber oil" from either wild or cultivated trees is much higher (about three to four times more) than it is in the corresponding "expression oil." For instance, from palm fruits from the Ivory Coast, the expression oil has 0.1 to 14 per cent of carotene while the corresponding "cake oil" or fiber oil generally shows a carotene content of 0.3 to 0.4 per cent and sometimes even more. While the expression oils obtained from fruits from estates of the Belgian Congo or Malaya contain approximately 0.06 per cent of carotene, the fiber oil shows a content of 0.15 to 0.25 per cent.

It is pointed out that palm fibers represent important tonnages. In the oil mills of French Africa 800 to 1,000 tons of fibers remain after the production of 1,000 tons of expression oil. These contain 15 per cent of water and 10 per cent of oil. Hence, if the total available palm fibers were processed, the carotene thus produced would be an important asset to the food and pharmaceutical industries.

PABA Sunscreen Cream

In commenting on the excellence of para-aminobenzoic acid (PABA) as a sunscreen, A. A. Fisher (*Arch. Dermat. & Syph.* 68:728, 1953) also calls attention to the difficulty that others have had in making smooth creams with the free acid. For some time, however, Fisher has been using the following combination, which yields a smooth, elegant preparation:

Para-aminobenzoic acid	**4.5 cc.**
Distilled water	**6.0 cc.**
Hydrophylic ointment	**6.0 cc.**
Vanishing cream, to make	**30.0 cc.**

Levigate the para-aminobenzoic acid with water to a smooth paste. Add

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hydrophilic ointment, and finally add the required amount of vanishing cream. The vanishing cream used may be that of any reputable cosmetic firm, according to Fisher. This preparation is an excellent sunscreen and it is much less sensitizing than the esters of para-aminobenzoic acid.

Quaternary Ammonium Cream

It is pointed out by M. A. Phillips (*Chemist & Druggist* 160:617, 1953) that creams and ointments based on the series of antiseptic substances known as quaternary ammonium salts (including benzalkonium, cetyl pyridinium chloride or bromide, cetyl trimethyl ammonium halides, etc.), are, if made properly, self-emulsifying and powerfully antiseptic over a wide and non-specific bacterial spectrum.

However, certain precautions must be observed in the manufacture of such preparations. Thus, the reagents must be quite free from any anionic surface-active material, which will not only prevent proper emulsification but will neutralize the bacterial activity of the quaternary compound (which is a cationic surface-active substance). In addition a proportion of a fatty alcohol such as cetyl alcohol, stearyl alcohol or the commercial mixture known sometimes as ceteostearyl alcohol, is essential to the formation of anything more than a transient emulsion. It is also noted that although the creams formed are powerfully antibacterial, mold growth on the surface sometimes occurs. If the product is packed in a container with cardboard in the lid, mold often grows on the cardboard. A little parachlorometazylenol (PCMX) or similar material will prevent the trouble.

These precautions are incorporated in the following procedure for making a typical quaternary ammonium-based antiseptic cream: Cetyl alcohol, technical, 225 Gm. is melted gently with soft white paraffin, 150 Gm. and liquid paraffin, 75 Gm. The quaternary ammonium salt, for example, cetyl trimethyl ammonium chloride, 7.5 Gm., is then stirred in to give a complete solution. PCMX, 1 Gm., is added and dissolved with the aid of gentle heat and agitation. The temperature of the mixture is then raised to 80° C. In the meantime, a solution of Glauber's salt, 10 Gm. in water, 1,050 cc. is prepared at 80° C. The fatty mixture is then poured in a thin stream into the vigorously agitated aqueous solution and the product set in a cooling bath with running water. The agitation is continued until the temperature has fallen to about 20° C., at which level a viscous cream is formed.

Hand Lotions

According to N. S. Peel (*Soap, Perf. & Cosmetics* 26:1135, 1953), the four formulas in the table below have been claimed to give stable, low fat content hand lotions or, as they would be called in England, liquid hand creams.

Peel remarks that old-style hand lotions invariably contained glycerine and usually a proportion of gum mucilage. Hand jellies based on gums karaya and tragacanth, on the alginates, and similar substances are still popular. Hence, formulas such as those given below are of special interest in this connection because they also contain small proportions of gums. Typical is the following greaseless type lotion of heavy consistency but which pours easily.

Macerate the gum in half the water (containing preservative), and allow to stand overnight. Next day, in the other half of water, dissolve the potassium hydroxide, glycerine and triethanolamine, bringing to 70° C. Separately on a water bath melt the stearic acid and beeswax, bringing to 70° C. Add the wax-acid mixture to the water-alkali mixture, with rapid stirring. While this is going on, warm up the tragacanth mucilage to about 60° C., and add to the emulsion being stirred, and continue rapid agitation until the emulsion is homogeneous, then continue stirring moderately fast until cool. Dissolve the perfume in the alcohol, adding this to the cold emulsion. Set aside in a closed container without touching for a day or two, to aid in developing pearliness. Strain through muslin. Bottle with the aid of a gravity filler.

	1	2	3	4
Glyceryl monostearate (self-emulsifying)	3.5	—	—	—
Stearic acid	2.5	5.0	5.0	1.4
Triethanolamine	1.0	1.8	1.8	0.4
Cetyl alcohol	—	—	—	0.3
Lanolin, anhydrous	1.0	5.0	10.0	2.3
Propylene glycol	5.0	—	—	7.0
Alcohol	5.0	—	—	7.0
Preservative	0.1	0.1	0.1	0.1
Perfume	0.1	0.1	0.1	0.1
Distilled water	81.8	88.0	83.0	81.4

Solids by weight (Gm.); Liquids by volume (cc.)

Stearic acid, triple-pressed	**5.0 parts**
Isopropyl myristate or palmitate	**4.0 "**
Cetyl alcohol, pure	**0.5 "**
Potassium hydroxide	**0.8 "**
Distilled water	**59.7 "**
Quince seed mucilage (2-1/2 per cent)	**30.0 "**

Somewhat more elaborate is the following formula for a liquid hand cream containing a small amount of gum tragacanth:

Stearic acid	**3.0 parts**
Potassium hydroxide	**0.1 part**
Triethanolamine	**0.2 "**
Glycerine	**8.0 parts**
Alcohol	**5.0 "**
Gum tragacanth	**1.5 "**
Beewax, white	**0.5 part**
Perfume and preservative	**sufficient**
Distilled water, to make	**100.0 parts**

Nongreasy Cream Hair Dressing

Among the several modern cosmetic formulas cited in *Schimmel Briefs* (No. 225) is one for a nongreasy cream hair dressing. As originally given in a publication of the Kessler Chemical Co. (Philadelphia), this formula calls for the use of:

Polyethylene glycol 400 monostearate	**4.0 per cent**
Propylene glycol monostearate, pure	**1.0 " "**
Lanolin	**1.0 " "**
Propylene glycol	**2.0 " "**
Water	**91.5 " "**
Preservative	**0.1 " "**
Perfume	**0.4 " "**

Heat all ingredients in one container to 70 to 75° C. and stir until cool. The product is a white viscous lotion, the viscosity of which may be controlled by varying the concentration of the propylene glycol monostearate.

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*Chemical Senses, page 1, Moncrief—lists senses as follows: "sight, hearing, touch, taste, smell." Note smell is listed Fifth.

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Inasmuch as you do not specify the type of tonic you require, I assume that you are referring to the vitamin B and iron preparations. A product of this sort, a palatable B-vitamin syrup with iron, consists of:

Thiamine hydrochloride	**96.0 mg.**
Nicotinic acid amide	**400.0 mg.**
Riboflavin	**24.0 mg.**
Ferrous sulfate	**4.2 Gm.**
Citric acid	**0.5 Gm.**
Distilled water	**60.0 cc.**
Syrup orange, to make	**240.0 cc.**

The dose for adults is one tablespoonful three times a day, while the dose for children is one to four teaspoonfuls three times a day, according to age.

Insect Repellents: I would appreciate very much any information that you have concerning insect repellents which can be used by sportsmen and children. This would be carried in a small bottle. WASHINGTON COURT HOUSE.

I would suggest that you write to the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, Washington, D. C. Data supplied by this Bureau indicate that a preparation such as the following is effective against a rather wide range of insects:

Dimethyl phalate	**3 parts**
Indalone	**1 part**
Rutgers 612 (2-ethyl-1,3-hexanediol)	**1 part**

Another formula along similar lines calls for the use of:

Dimethyl phthalate	**3 parts**
Indalone	**1 part**
Dimethyl carbate	**1 part**

Sunscreen Data: We should like to look up some comparative studies of sunscreen agents, and should be very much obliged to you for any bibliography of papers describing the permeability of solutions of different sunscreen agents for light of different wave lengths. We believe that such studies might have been published in your journal in the past or that you might be able to suggest to us references that we may look up. TORONTO.

I think you will find pertinent information in the following references:

W. D. Kumler: J. A. Ph. A., Scient. Ed. 41:493, 1952.

W. D. Kumler and J. C. Daniels, J. A. Ph. A. Scient. Ed. 37:475, 1948.

Greaseless Cream: We notice that one of the leading cosmetic firms is offering a cream containing lanolin as being greaseless. Is this permissible? We would like to market a greaseless cream containing lanolin and also including cetyl alcohol and isopropylmyristic. DETROIT.

Lanolin in small proportions is frequently used in so-called greaseless creams to impart added emollient action. A hand cream containing the ingredients mentioned by you is as follows:

Stearic acid	**5.0 parts**
Oleic acid	**1.5 "**
Cetyl alcohol	**0.5 "**
Lanolin	**1.0 "**
Almond oil	**5.0 "**
Isopropyl myristate	**10.0 "**
Triethanolamine	**1.2 "**
Glycerine	**5.0 "**
Water	**70.9 "**
Preservative	**sufficient**

Scalp Pomade: We would appreciate formulas of proven merit for dandruff and allied scalp disorders containing lanolin, sulfur and resorcin. CHICAGO.

I think the following scalp pomade, as suggested by Goodman for the treatment of scalp seborrhea-alopecia, is in line with what you want:

Pilocarpine hydrochloride	**1.0 parts**
Water	**4.0 "**
Precipitated sulfur	**6.0 "**
Resorcin monacetate	**4.0 "**
Lanolin, anhydrous	**12.00 "**
Mineral oil, low viscosity	**12.0 "**
Petrolatum, to make	**100.0 "**

Incorporate the solution of pilocarpine hydrochloride with the anhydrous lanolin; then mix the other ingredients. To use: Massage a small quantity into scalp prior to washing scalp.

It is my impression that the pilocarpine and the water may be left out if desired.

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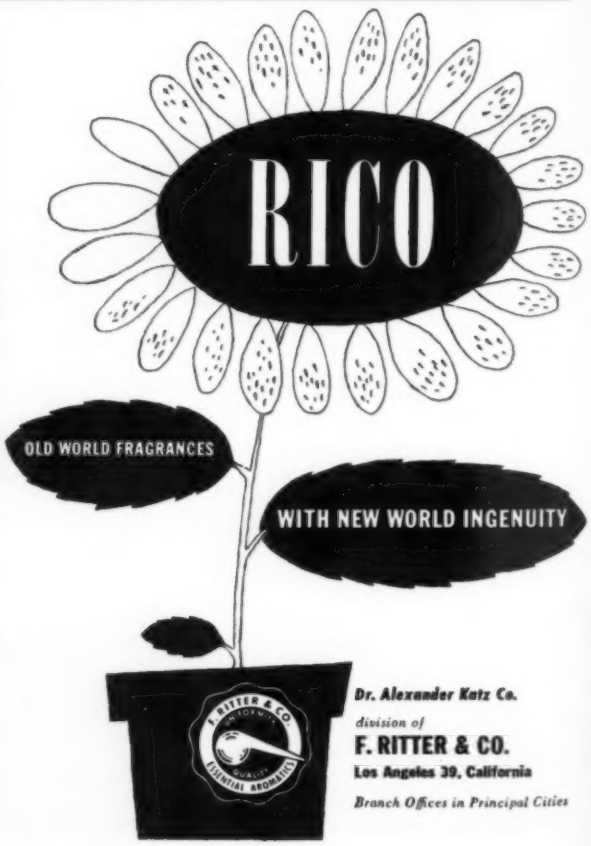

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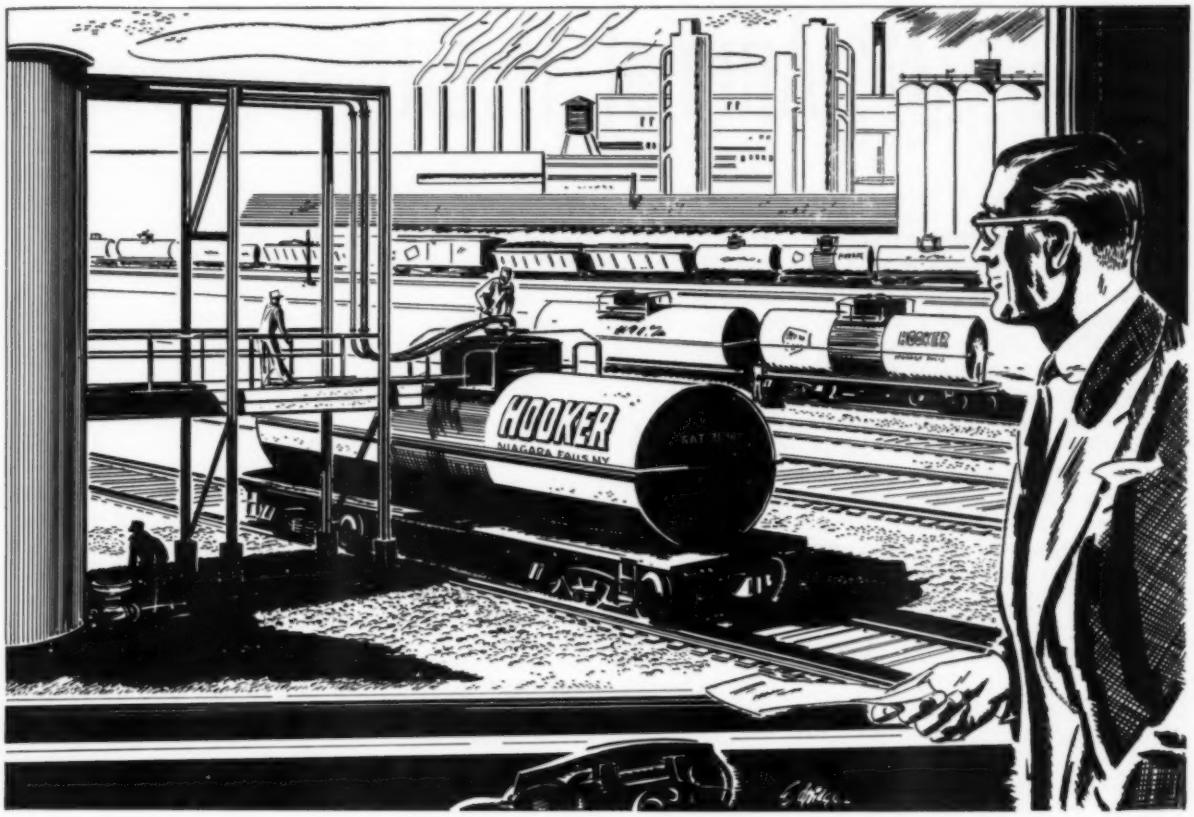

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Animal Health

Distemper Prophylaxis in Dogs

In reporting on distemper prophylaxis in dogs, J. L. Faltta (*Nord. Vet. Med.* 5:160, 1953 through *J. Am. Vet. Med. Assoc.* 123:144, 1953) states that an inactivated vaccine (Virogen) was used on 204 dogs, of which 199 completed the series of three injections. The dogs were of 31 different breeds and varied in age from three to 18 months. None of the animals had been exposed to distemper virus nor had they been previously vaccinated with any other product. Of the 199 animals observed over a two-year period, 12 had slight reactions that were transitory, 13 died of causes other than distemper, six had other illnesses from which they recovered, and only four had distemper. In these cases, the disease was not severe and the animals recovered. In addition to dogs, the vaccine was used on a few foxes and ferrets. Some of these were injected with distemper virus in two or six months without the development of the disease. Nonvaccinated ferrets died.

Aureomycin, Niacin and Manganese in Chick Nutrition

The effect of aureomycin on the niacin and manganese requirements of chicks has been investigated by W. F. Pepper, S. J. Slinger and I. Motzok (*Poultry Sci.* 32:656, 1953) they found that dietary aureomycin increased growth and improved feed efficiency with diets containing all combinations of 10, 30 and 50 p.p.m. of manganese and 9, 18 and 27 mg. of niacin per pound. Considering weight, feed efficiency and the incidence of perosis, the requirement for niacin was in excess of 18 mg. per pound of diet and the manganese requirement was greater than 30 p.p.m. Aureomycin enhanced the utilization of both manganese and niacin for growth promotion and the prevention of perosis but did not appear to reduce the dietary requirement for either nutrient.

Raising the manganese level from 10 to 50 p.p.m. resulted in a significant increase in the weight of the small intestine and ceca. Aureomycin brought about a slight, but non-significant, increase in cecal weight and a significant reduction in the weight of the small intestine.

Progesterone for Cattle

In considering the use of progesterone to control habitual abortion in cattle, E. A. Woelffer (*J. Am. Vet. Med. Assoc.* 123:505, 1953) notes that progesterone preparations available to the veterinarian have been oil solutions or aqueous suspensions. Upon injection, either subcutaneously or intramuscularly, the hormone is rapidly absorbed, with a resulting systemic effect of short duration. This type of preparation, for practical or economical reasons, has not been used in treating bovine abortion cases. Recently, a new type of parenteral solution, Repositol progesterone, designed to promote sustained hormonal effect, was made available. Following intramuscular injection of this solution, the progesterone is precipitated by contact with the tissue fluids to form an implant. This hormone preparation was used on eight cows with a history of previous abortion. All treated animals received 500 mg. of the hormone as a dose, regardless of age or breed, at seven- to ten-day intervals. The injections were made in the muscles of the neck and gluteal regions. Full-term pregnancy resulted in seven of the cows.

In reporting on another study with Repositol progesterone, J. B. Herrick (*Vet. Med.* 48:489, 1953) pointed out that in routine sterility work in cattle, there frequently is observed the female that has a normal reproductive tract, regular estral cycles, and no evidence of disease, yet fails to settle. This type case is found in both beef and dairy herds with normal breeding efficiency.

To determine whether progesterone therapy could be used beneficially in animals with a history of repeat services, 40 heifers were selected in five different herds for study. These heifers had a history of at least four services, and examination had not revealed any evidence of disease or anatomical abnormalities. The animals were bred by natural service or artificial service. Heifers were used in this study to minimize any complications that might exist in older females. Examinations for pregnancy were made 45 to 75 days following last service. Twenty of the heifers were selected for treatment with progesterone, while the remaining 20 were designated controls. Controls were injected with 3 cc. of the vehicle only. In the 20 treated animals, 13 were diagnosed pregnant (65 per cent). Seven were pregnant on the first service, four on the second service and three on the third service. In the control group, pregnancy resulted in four of the 20 heifers (20 per cent). Only one animal was pregnant on the first service; the others conceived on the second or third.

Herrick believes that this controlled study indicates that an injection of progesterone in repeated breeding heifers can increase conception rate. The use of an implant to produce sustained hormone levels is practical and can be used conveniently by veterinarians who treat these cases.

Terramycin in Mineral Oil for Pullets

In a paper presented at the 42nd annual meeting at the Poultry Science Association (through *Poultry Sci.* 32:891, 1953), J. R. Carson, R. D. Eaton and R. E. Luginbuhl reported that two groups of trapnested laying pullets displaying symptoms of chronic respiratory disease and from which a causative organism had been isolated, were injected subcutaneously at the base of the comb with 50 mgs. of Terramycin suspended in mineral oil. Similar groups were maintained as controls. The minimum time from display of first symptoms of the disease to time of injections was approximately one month in one group and four months in the other.

Gross symptoms of the disease such as rales, coughing and sneezing had largely disappeared by the sixth day after injection and a recurrence of the symptoms was not apparent for the remainder of the experiment. Egg production was significantly increased in both groups of treated hens. That group in which the disease had been present for the shorter period of time gave the greater response to treatment. Egg

production showed maximum response seven to 10 days after treatment. Differences between the experimental and control birds still persisted 51 days after the start of the experiment. Although shell thickness declined in all groups during the post-injection period, the decline in the treated birds was significantly less than that in the control group. Albumen quality and egg weight showed no improvement after treatment.

Surital Anesthesia for Dogs and Cats

Clinical data are presented by F. E. Eads (*California Vet.* 7:24, Sept.-Oct. 1953) covering 7,522 dogs and cats following the use of Surital sodium (sodium 5 - allyl - 5 - (1 - methyl - butyl)-2-thiobarturic acid) administered either alone, following premedication with morphine and atropine, or concurrently with d-tubocurarine chloride. Results of clinical use of Surital thus far indicate that anesthesia is of short duration; that induction and post-operative excitement are practically nil; that a relatively high margin of safety prevails if the agent is given slowly to effect, and that a minimum amount of circulatory and respiratory depression is produced.

Surgical anesthesia usually persists for a period varying from 10 to 30 minutes, depending upon the depth of anesthesia. Recovery from the anesthetic is usually complete in approximately one and one-half hours. Using four per cent solution, the approximate dosage of Surital when administered intravenously to dogs and cats is 1 cc. per five pounds of body weight, depending on age and condition of the patient.

Foot Rot in Sheep

Following a consideration of the symptoms, differential diagnosis and etiology of foot rot in sheep, H. Marsh (*J. Am. Vet. Med. Assoc.* 124:1, Jan. 1954), discusses the treatment and control of this condition. In treating foot rot of sheep, he believes that the objective should be the complete eradication of the infection in as short a time as possible. This means that palliative treatments, which may cause improvement in individual sheep without complete recovery, are of little value. In this category would be treatment with sulfonamides which, in his limited experience, has not been effective. The only treatment which he recommends consists of complete surgical exposure of all diseased tissue, followed by immersion of the foot in some bactericidal solution which also has an astringent effect. Several such solutions have been tried in controlled experiments, and 30 per cent (saturated) copper sulfate solution has been found to be the most effective and practical. The only objection to this solution is that it stains the wool of the legs and possibly of some areas of the body, from splashing in the bath. As the Australians are sensitive to any staining or soiling of wool, some of them have used 10 per cent formalin which is quite effective, but even in Australia, it is placed second to copper sulfate.

In an infected flock of sheep, it is necessary that all the sheep be set up and that every foot be examined. After surgical exposure of all the diseased tissue, all of the sheep in the flock should be walked through troughs containing 30 per cent copper sulfate solution. If every affected foot is thoroughly trimmed and treated with copper sulfate, the disease shuold be eradicated in one treatment.

Photosensitization in Cattle

Photosensitization is an inflammation of the skin affecting cattle grazing on green pastures. The condition is actually caused by the presence of certain organic materials in the bloodstream which sensitize the skin to the light rays of the sun. In discussing the symptoms of this condition, S. A. Mountjoy (through *Australasian J. Pharm.* 34:994, 1953) states that they occur only on unpigmented portions of the skin and then only when the animal is exposed to bright sunlight, chiefly during the spring, summer and early autumn months. Lesions occur commonly on the upper part of the body, around the face and eyelids and on the ears. The udder and teats of cows are often affected and also the white parts of broken-colored animals. The first symptoms are a reddening and then swelling and itchiness of the affected parts. The animals appear dull, stay in the shade as much as possible and lose their appetite. The skin then becomes "dead," assuming a hard and scaly appearance. The affected skin will eventually separate and peel from the underlying tissue. The raw surfaces become irritated and many quickly turn septic. They also may be struck by flies unless care is taken.

Treatment of photosensitization consists mainly in moving the affected animals from the pasture contributing to the condition and putting them in a paddock with ample shade to protect them from the sun's rays. An allowance of hay should be provided. The affected parts should be dressed with an antiseptic ointment. If any signs of constipation are present a purgative of Epsom salts will prove beneficial. The animals may also be protected by smearing the susceptible light-colored or white parts with an oily or greasy dressing mixed with lamp black. This acts in the same way as the pigment in dark skin, which protects the skin from penetration by the sun's rays. A strong solution of ordinary washing blue painted on the lighter patches has also been found useful as a protection.

Urea in Dairy Rations

Citing data presented in U. S. D. A. Bureau of Dairy Industry Circular 160, R. R. Dykstra (*Vet. Med.* 49:14, 1954) remarks that the question of adding urea to dairy cattle rations comes up rather frequently. As nearly as it is possible to give a reasonably up-to-date answer, urea is not a protein, although rumen bacteria are able to convert it into amino acids and protein. Research has indicated that urea is of no value for milk production purposes if the grain ration already contains from 14 to 18 per cent of protein, as it will be utilized only to the extent of 40 per cent or less. However, if the grain ration has no more than 10 per cent of protein, such as in homegrown grains, it can be utilized to as high as 80 per cent. In the Middle West it may be economically sound, in general, because carbohydrate concentrates are usually lower in price than protein concentrates, to feed one pound of urea and six pounds of carbohydrate concentrate, provided that the price of this combination is less than that of seven pounds of protein concentrate. English researchers have found that when more than three ounces of urea are fed per day, it exhibits its toxic action by a depressant effect on milk production, which means that if a cow receives six or seven pounds of grain per day the limit of urea should not be over three per cent. With dry dairy cows and growing heifers during the winter season, urea can be used so as to utilize some of the poorer quality roughages in combination with cereal grain and molasses, but with good quality legume hay. Dairy heifers will make normal gains on such rations without a grain supplement.

Perfumer's Shelf

Infrared Spectroscopy

In a report prepared by the Aromatics Committee of the Essential Oil Association of the U.S.A., it is pointed out that infrared spectroscopy has caught the imagination of the chemical industry. It is realized, however, that the infrared spectrophotometer will play an indispensable but nevertheless limited role in the cast of analytical instruments. It will not replace such instruments as the ultraviolet spectrophotometer and the colorimeter.

Modern commercially available spectrophotometers automatically record a graph of per cent transmission against wave length. A spectrum can be obtained in about 15 minutes although for special problems the time may be greatly lengthened. The instrument manufacturers have made it possible to get spectra rapidly and conveniently. The interpretation of spectra requires knowledge and experience. If the spectra of pure materials are compared and found dissimilar one can be sure that the materials are different. If the spectra are alike then it is strongly probable but not certain that the materials are identical. Different compounds may have similar spectra. Additional uncertainty will arise if the original purity has not been definitely established. Whether spectral differences in various spectra are due to impurities or of structural origin may be a difficult question. One authority has stated that although the minimum detectable amount of impurity varies enormously from one case to another one mole per cent is a typical value. It may occasionally be possible to detect extremely small amounts of one compound and overlook fairly sizable quantities of another in the same mixture. This follows from the varying intensities of absorption, the degrees of similarity, and the fortuitous band overlapping exhibited by the components of a given mixture. The detection and identification of minor constituents of essential oils or perfume compounds will be facilitated by the infrared spectrophotometer only in a few particularly favorable instances.

Where matching spectra cannot be obtained the spectroscopist can in most cases identify some of the gross structural features of an unknown. Aldehydes, alcohols, acids, esters, aromatics, unsaturates and many other functional groups absorb radiation of specific wave lengths. The absence of absorption at these wave lengths positively indicates the absence of a specific functional group. The finer details of the structure of a substance are difficult if not impossible to ascertain from the spectrum alone. Matching the spectra of an unknown with a known material is the best, though not perfect identification. Where the unknown is a complex mixture, as is commonly the case with even simple perfume blends or essential oils, the spectroscopist is almost helpless. with the assistance of a fractionating column, chromatography and chemical separations coupled with a substantial library of reference spectra progress can be expected. The preparation of the necessary pure reference compounds is obviously a costly, time-consuming process. This synthetic work also is required for quantitative analysis in order to establish constants and minimize interferences. An assay for a constituent of a complex natural product may still be only partly reliable due to the usual variations in natural products or the nature of an adulteration. A determined blender could outwit the unaided infrared spectrophotometer in many instances.

Fundamentally the infrared spectrophotometer is a simple instrument. Radiation of a specified wave length selected from the range of wave lengths available on the instrument is passed through a sample and the amount of unabsorbed radiation is measured. The infrared spectrum is directly dependent upon the kinds of atoms in a molecule, their special configuration, and the type of bonds in the molecule. Obviously each molecular species or compound should then have a unique infrared spectrum. However, very similar compounds can have radically different spectra and radically different substances can have somewhat similar spectra.

Obviously the infrared spectrophotometer will not eliminate the chemist nor the perfumer, taster, or color matcher. It will provide a powerful tool, in competent hands, for aiding the solution of many problems either difficult or impossible by other means alone. Once an assay procedure has been established it is elegant and rapid. The inherent response of the infrared spectrophotometer to almost all organic molecules coupled with the high specificity of spectral character for each compound indicates an enormous potential justifying the ingenuity and time spent in its development and in applications.

Oil Formation in Asarum Europaeum

In a report on the differentiation of oil cells and the formation of ethereal oil in *Asarum europaeum*, K. Paech (*Z. Botan.* 40:53, 1952 through *Chem. Abstr.* 48:956, 1954) states that the pith of the rhizomes of this plant contains, besides droplets of ethereal oil, strongly refractive particles that may be oil precursors. The oil is much more soluble than the particles in alcohol, ether, chloral hydrate and chloroform. However, the particles are soluble in water and sulfuric acid while the oil is not. Colors given by various dyes with the oil and the particles, respectively, are: alcoholic Sudan III, deep red, colorless; Indophenol Blue, blue-violet, colorless; colloidal Sudan III, deep red, colorless; Alkamine, red, colorless; 2,6 - dichloroindophenol, red - violet, colorless to pale blue; Nile Blue, dark blue, colorless to blue.

Oil of Ridolfia Segetum

A sample of the essential oil of *Ridelfia segetum* examined by J. Gattafosse and G. Igolen (*Industrie parfum.* 6:305, 1951 through *Chem. Abstr.* 47: 9573, 1953) had the following properties:

Specific gravity	0.9396
Index of refraction	1.4982
Specific rotation	+54°20′
Acid value	0.56
Ester value	7
Carbonyl value	8.40
Diene value	468

One part of the oil dissolved in 10 parts of 90 per cent alcohol but it was

TOP NOTES by Fritzsche

FRITZSCHE BROTHERS, INC.

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A THOUGHT for the Month:

"He is not only idle who does nothing, but he is idle who might be better employed."

—SOCRATES

FLOWER of the Month

February — Violet
or Primrose

March — Jonquil
or Daffodil

MAYBE YOU KNOW HIM . . .

STANLEY BURTON SCHUSTER is a true "son of the soil"—a gentleman farmer, on a modest scale, who spends week-ends and vacations assisting with the maintenance, plowing and harvesting of the family's 400-acre farm and on his own much smaller acreage in Woodstock, Illinois. Farming is Stan's idea of really living—but not necessarily of *making* a liv*ing*. For that, he considers Fritzsche to be "tops" and he supports this opinion by pointing to his own employment record of more than 31 years in the company's service. Stan works out of the Chicago office with accounts inside the Metropolitan area. His popularity with customers and co-workers alike is a reflection of sincere fondness engendered by his ever friendly disposition and infectious good humor. He likes people and people like him. Inland fishing has long been one of his favorite interests and an adept hand at constructing his own fly rods has lent, for him, added lustre to the sport. One more interest—his children: Sue Ann, 12, and Stanley James, 4 . . . and he's prouder than a pickerel of these!

RECOMMENDATION of the Month

DELISSE BOUQUET

If you have need of an attractive, light, diffusive floral at low cost, DELISSE BOUQUET is a fragrance well worth considering. Initially, this composition emanates the perfume of lily of the valley. As it dries, another note appears, unidentifiable, but very pleasing—and it lingers on and on, a lasting and most delightful effect. Attractively priced, too: $15.00 per pound; $.95 for a trial ounce. Try DELISSE BOUQUET . . . we believe you'll like it.

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If you are interested in a richer and more arresting odor effect for your product, our extensive line of FRITZBRO SPECIALTIES includes a stimulating variety of basic materials, some of which may well give profitable new direction to your creative efforts. Even as modifiers, these materials impart characteristics essential to, but sometimes lacking in the finished composition,—*fullness, lift, tonality, depth.* Each FRITZBRO SPECIALTY is, in itself, a complete well-fixed, well-balanced composition, designed for use either as a base or as an adjunct for improving the odor of the finished goods. If you'll describe us your needs, we'll gladly send you further information concerning these superior perfumers' materials.

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Good Scents

FOR PERFUMERS

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SPRING—just around the corner, with summer only another all-too-brief season away—and then the big demand for light, body-cooling colognes, toilet waters and after-bath refreshants. To an industry dedicated primarily to the pleasant task of heightening feminine daintiness, elegance and charm, this is the season when—more than ever—its creations can helpfully serve m'lady's physical and emotional needs. *Good fragrance* being the key to much of the success his products will enjoy, it will pay the toilet goods manufacturer to examine and experiment with the fragrances available for such use. Therefore, as *our* candidates for the perfuming of *your* summer toiletry line, we offer you the following:

MEADOW SWEET I-759	$15.00 lb.
BOUQUET COLOGNE V-699	$14.00 lb.
SWEET ORIENTAL L-421	$12.50 lb.
FRENCH BOUQUET K-195	$17.50 lb.
REFRESHING LAVENDER M-091	$ 7.50 lb.

***TRIAL OFFER:** We'll send you ½ oz. sample bottles of all SIX of the fragrances listed (including our "Recommendation of the Month") for $2.00 to cover cost of packing and handling, or your choice of any THREE for $1.00, check or money order to accompany coupon below properly filled in.*

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(Enclose $2.00 for 6 perfumes; $1.00 for 3)

- ☐ MEADOW SWEET I-759
- ☐ BOUQUET COLOGNE V-699
- ☐ SWEET ORIENTAL L-421
- ☐ FRENCH BOUQUET K-195
- ☐ REFRESHING LAVENDER M-091
- ☐ DELISSE BOUQUET (Recommendation of the Month)

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MULTIPLY the operation pictured above by *every lot* of oils and aromatics that enter our plant and you get some notion of what it means to guarantee, unconditionally, the quality of our merchandise. Multiply this figure again by the half dozen or more *different* tests each lot is subjected to and you gain an additional idea of what such assurance involves. Then follow along adding to this the meticulous care that is practiced in our handling of an order from the time it is entered until it leaves our plant, expertly compounded, carefully checked, packaged, routed and shipped—usually the same day—and you just can't help saying to yourself: "No wonder FRITZSCHE products never give me any cause for complaint!"

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YOU'LL LOVE THIS

REALLY, you will! It'll get you well quick and you'll love its nice flavor. . . . Which is just about the best combination of appeals any medicinal preparation can offer. And that's exactly what many of the top products, today, *are* offering—efficacy and palatability *combined.* More and more, this is the industry's present trend, approvingly supported by doctors . . . appreciatively accepted by patients. Of course, the achievement of palatability is not merely a matter of adding to the modern drug some taste-appealing, stock flavor. There is much more to it than this. Far more restful is the well co-ordinated scientific approach—the meeting of flavor expert and pharmacist with each bringing to the solution of a common problem the highly specialized knowledge of his particular field. It is in applying our 83 years of flavor making experience in this manner to the drug trade's increasing taste problems that we have rendered this industry most distinguished service in recent years. We cordially invite you to sample this service by consulting with us—confidentially, of course—any time some flavor problem challenges you for solution.

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insoluble in 85 per cent alcohol. The oil contained *D-alpha*-phellandrene and approximately 33 per cent of myristicin.

Fruit Flavors

In his discussion of fruit flavors J. H. McGlumphy (*Perf. & Essent. Oil Rec.* 44:352, 1953) points out that high fruit prices in recent years have made it mandatory that the extract manufacturer adopt new processing technics. Hence, the modern extract plant is equipped to process fruits by any one, or a combination of several methods, depending upon the type of fruit and the purpose for which it is to be used.

Thus, concentration by freezing finds a place in such a program because of the product obtained. However the freezing method has always been retarded by its higher cost, and the limited concentration that may be obtained. Repeated freezings are required to effect maximum concentration and the efficiency decreases rapidly with each successive handling. Nonetheless, a single freezing may yield a two-to-three-fold concentration which in some cases makes a valuable addition to more highly concentrated products obtained by other methods.

The method for recovery and concentration of the volatile aromatics from apples and grapes developed by the Eastern Regional Research Laboratory has been found applicable, with some modifications, to many other fruits. An essence-recovery unit set up as part of a fruit-processing equipment has been used successfully for several years on raspberries, strawberries, cherries, pineapples, peaches, apricots, currants, and blackberries as well as on apples and grapes. After the removal of these very important volatile materials the remaining juice is generally treated with enzymes to remove pectins, clarified by centrifuging, and concentrated under high vacuum. With the pectins removed, a high degree of concentration is possible. When necessary, fruit may be processed throughout in an inert atmosphere, the juice pressed, deaerated, depectinized, clarified, and a portion concentrated by freezing. Volatile essences may be recovered from the remainder by fractional distillation, this portion then concentrated in high vacuum and all these parts are finally combined with the extracts or distillates from the press cake. The resulting product contains practically all the flavor present in the original fruit in a highly concentrated form that is free from troublesome pectinous material and is relatively stable.

In Europe, efforts have been made to increase the flavor yield from fruit by fermentation, using, in some cases, rare wine yeasts. While certain yeasts do increase the flavor strength of fruit juices, this increase is accompanied by a loss of fidelity, so much so that it is sometimes difficult to tell by taste what fruit was used as the starting material.

McGumphy believes that further progress will come through a more thorough knowledge of those ingredients to which the flavor is due. Such knowledge can also be applied to the development of finer synthetic flavor for use when economics forbid the use of natural flavors alone.

Unfortunately the extremely small percentages of flavor materials in fruits precludes their easy identification. However, the application of new tools and analytical methods, such as absorption spectrophotometry, chromatography, and ion exchange separations, is now making possible the isolation and identification of these elusive but highly important ingredients.

In considering the formulation of flavors, McGlumphy observes that until recent years the flavor chemist has been essentially an artist. He has found that certain aromatic chemicals, essential oils and natural products when properly compounded will make a synthetic flavor that resembles with remarkably fidelity, in many instances, the flavor, and aroma of certain fruits. The work on the composition of the flavor of the flavor-bearing portions of several fruits has verified the presence of aromatics that have been used by expert flavor men for years. To date not enough work has been done so that the organic chemist can produce, with his findings, a flavor of superior fidelity to that of the flavor-creator. However, each new finding by the organic chemist adds to the art of the flavor chemist and they are now working together and producing vastly superior products.

Wild Lime Oil

The steam distillation of the leaves of *Atalantia monophylla*, or wild lime, by U. G. Nayak and P. C. Guha (*J. Indian Chem. Soc.* 28:713, 1951) gave an oil in 0.4 to 0.6 per cent yield. This oil, which had a brown color and citrus odor, was found to have the following characteristics:

Specific gravity	**0.8675**
Index of refraction	**1.4650**
Specific rotation	**—34.18°**
Saponification value	**92.85**
Acid value	**6.85**

Considerable data were also obtained concerning the properties of the various portions obtained after fractionation of the oil.

Products from Cedar

The production of an essence of cedar from the tree growing in Spanish Morocco has been suggested by J. G. Montero (*Rev. ind. y fabril* (Madrid) 8:89, 1953 through *Chem. Anstr.* 47: 11667, 1953). The essence is produced from the wood or the leaves by distillation or solvent extraction. The product derived from the leaves is composed chiefly of *d*-limonene with small amounts of borneol and codinene. That derived from the wood is a solution of cedrol or "cedar camphor" in cedrene. Montero notes that the residue from the manufacture of pencils and other products is used for steam distillation to give an essential oil of poor quality that is unsuitable for perfume.

The wood of Atlantic cedar gives 3.5 per cent of a heavy oil of light brown color and pleasant odor. The white cedar and others are also used. On steam distillation, the leaves of red cedar give 0.2 per cent of an essence. Dry distillation of the wood gives a dark-colored essence with a pronounced odor. According to Montero, the essence of red or Virginia cedar is a wet crystalline mass containing cedrol.

Clove Oil

Analysis by C. Goldstein (*J. Sci. Ind. Research*, India 12B:281, 1953) of whole clove buds (A), crushed clove buds (B) and clove stems (C) yielded the following data in the table below.

The oil from the stems is soluble in an equal volume or more of 70 per cent alcohol, while the bud oil requires two volumes at 15° C.

	A	B	C
Oil content (per cent)	16	17	7
Eugenol (vol./vol. per cent)	97	94	95
Specific gravity	1.0811	1.080	1.069
Index of refraction	1.5368	1.5370	1.5373
Optical rotation	−0°25′	−0°27′	−0°30

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Patent Thoughts and Trends

*by Thomas Cifelli, Jr.**
PATENT ATTORNEY

PATENT FEES ON WAY UP

It is going to cost more money to obtain U. S. patents in the near future. To those who know what it is to meet financial obligations incidental to obtaining patents, this statement may appear to be an old story. However, the sad truth of the matter is that the upcurve in patent costs is still running strong. The increases in the recent past have been due mainly to increases in the professional fees of patent attorneys and patent draftsmen, which increases in turn were brought about by the increased expenses of these groups. Another hidden, but nevertheless important, factor in accounting for increases in patent costs during the last decade or so is the time, labor and expense involved in meeting the hypertechnical formal rejections of the Patent Office, particularly in the chemical divisions. It may, therefore, come as a surprise to some who believe that government is usually very quick to detect a loose available dollar for tax purposes, that the U. S. government filing and final fees for U. S. patent applications have not been raised for a good many years. This omission, however, is in the process of being corrected and a pending bill has for its purpose the increase of these and other fees in the Patent office.

Under the present practice, there is a U. S. filing fee of $30.00 for patent applications and if the Patent Office allows the application, a final government fee of $30.00 is also required before the patent will be issued. A filing and final fee of $1.00 for each claim in excess of 20 is also exacted. Under a proposed bill, the new schedule will be $40.00 for the filing fee and $50.00 for the final fee, plus $5.00 for both filing and final fees for each claim over five. Increases in various Patent Office operations to try to make them self-supporting are also in the picture. Such operations include photostating, correcting drawings, recording instruments, certifying instruments, etc.

Just what the exact nature of the increases finally written into law may be is, of course, problematical at this time. However, that there will be increases cannot be doubted, for the Patent Office is now in the position of having to provide increased services in the face of increasing operating costs and a decreasing budget, the latter being in line with the pay-your-way principles of President Eisenhower's administration.

There is a large segment of opinion among the patent bar that the increases suggested may prove a deterrent and about the only suggestion that has been made which would seemingly take care of this latter point is the one which would maintain the present filing fees and would set a final fee of $30.00 but in that event the patent would only be issued for five years instead of the present 17 years. If the inventor wanted a 10 year patent, he would pay a final fee of $60.00 and if he wanted a 17 year patent, he would pay a final fee of $100.00. The principle behind this suggestion is that the additional fees would be payable only by those seeking longer patent terms and only at a time when they know exactly what they are getting from the Patent Office.

Medicated Dental Floss

It almost seems sometimes as if the dentists have outdistanced the lawyers as the most unpopular professional people in the mind of the populace. Witness the claims made in recent years for the ammoniated, chlorophyll and anti-enzyme tooth preparations for the teeth. These were all intended to eliminate cavities in teeth and without such cavities most of us could probably get along without dentists.

Now along comes W. H. Ashton with an idea to begin where tooth preparations leave off. He proposes to put medicaments in the dental floss and for his contribution he was awarded U. S. patent 2667443, assigned to Johnson & Johnson.

Specifically, Ashton's idea is to impregnate certain chemicals in the dental floss in order to:

1. Assist in enamel growth and, thereby increase resistance to dental caries;

2. Protect enamel or dentine by the preferential coating of insoluble precipitates;

3. React with, neutralize, sequester, buffer, or counteract acids which are present in the saliva or those which are produced therein by bacteria or subsequent enzymatic disintegration of foreign particles lodged in the interproximal regions of the teeth.

The chemicals may be impregnated either by mechanical means, or in the form of a water solution, or in melted waxes.

The patent lists the following compounds as illustrative of those which may be applied onto the floss with or without binders:

1. Aliphatic amines, e.g. tricetyl amine;

2. Cyclic amines, e.g. hexamethylene tetramine;

3. Fatty acid amides containing less than 25 carbon atoms, e.g. stearamide;

4. Basic amino acids, e.g. lysine;

5. Polypeptides, e.g. glycylglycine;

6. Inorganic basic salts such as $(NH_4)_2CO_3$, Na_2HPO_4, $(NH_4)_2HPO_4$, CH_3COONa, K_2HPO_4, etc.;

7. Compounds which will give rise to basic products as a result of reaction or disintegration in the interproximal regions, e.g. urea or biuret;

8. Mixtures of any of the above to total 20 per cent by weight of the yarn;

9. The specific combination of urea dibasic ammonium phosphate as disclosed by Kesel;

10. Coating with cellulosic ether amides to act as neutralizing agents.

All of the claims require the dental floss to be impregnated with a dental medicament in a water-soluble solid wax.

*GAYLOR, CIFELLI & JURICK
Newark, New Jersey.

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Versatile Ion Exchange Resins

The patent literature for some time has given testimony to the versatility of ion exchange resins. Two recent patents are cited as illustrations, with the thought that a brief consideration of these patents may be helpful to any reader who has not as yet considered the use of ion exchange resins in his work.

In one patent, U. S. 2667417, some French inventors employed these resins in the purification and stabilization of fruit juices.

The inventors point out that the treatment of various juices of plant origin, such as beet-root juice, and fruit juices in general, with ion exchange materials has been known for a good many years but the results obtained have been generally unsatisfactory. The key to the successful solution of the problem, according to the inventors, is the selection of the correct ion exchanger and the adaptation of the contact time for the specific exchanger and the composition of the liquid being purified.

In the case of the fruit juices to which the patent is directed, it was found that very satisfactory results are obtained for the purification, clarification and stabilization of fermentable fruit juices in a stage prior to the aging of these juices, particularly, wines, ciders, fruit juices, etc. by passing the impure fruit juice through a synthetic cation exchanger such as after-solfonated polystyrene cross-linked with up to 10 per cent divinyl benzene, after-sulfonated polystyrene cross-linked allyl esters of unsaturated dicarboxylic acids and polyvinyl sulfonates obtained by the oxidation of copolymers of alkoyl sulfides and sulfones, and thereby removing heavy metal ions, precipitable potassium bitartrate and precipitable calcium tartrate to leave in the treated juice a molar ratio of potassium to calcium ions of about four to one at a low pH of about two, whereafter the juice is passed through a synthetic resin cation exchanger such as a ternary alkenyl ammonium polystyrene, a quaternary alkenyl ammonium polystyrene, mixtures of ternary alkylamino-polystyrene cross-linked with alkylamino-polystyrene and mixtures of alkenyl ammonium polystyrene cross-linked with alkylamino-polystyrene to remove the carboxylic acid and bisulfite impurities from the juice and to raise the pH to above a pH of about 3.

The second patent employing ion exchange resins for purification procedures is from the petroleum field being U. S. 2667514, dealing with the removal of cobalt catalyst utilized in the preparation of oxygenated compounds such as aldehydes and alcohols by the reaction of carbon monoxide and hydrogen.

According to the patent, removal of the cobalt catalyst has been a production man's nightmare. For one thing, present catalyst removal methods require periodic interruption in order to remove accumulated metallic cobalt from the packing, to prevent plugging up feed inlet lines and adjacent areas of the decobalting vessel. Furthermore, cobalt metal deposited as a film on the heating means, and required constant removal to prevent the plugging of the pre-heating equitment and coating of the contacting surfaces. The removal of these films and deposited cobalt metal was a tedious and difficult process, and the necessary shut downs added significant costs to the economics of the synthesis process. There were additional drawbacks arising from the fact that the aldehyde product was maintained for extended periods of time at elevated temperatures, and everyone knows how sensitive aldehydes are to high temperatures. The solution to this problem according to the patent, is to pass the aldehyde reaction product and dissolve cobalt through ion exchange resin, preferably employing the ion exchange resin in conjunction with a conventional decobalting method, whereby in the first stage the bulk of the dissolved cobalt is rapidly removed by thermal decobalting and in the second stage the more difficulty removable cobalt is substantially completely removed by percolation at room temperatures, over a synthetic ion exchange resin, thereby avoiding the long contact time at elevated temperatures.

The resins suggested for use in the decobalting operation are "Amberlite-IRC-50" and "Duolite C-10," the former being a product of Resinous Products Chemical Company, Philadelphia, and the latter being manufactured by Chemical Processing Company, Redwood City, Calif.

Long Chain Alcohols from Low Molecular Weight Alcohols

The petroleum field also furnishes an example of how the chemist can make a long chain fatty alcohol, for example lauryl alcohol, from a low molecular weight alcohol such as methanol, ethanol or isopropanol. The process in question is disclosed in U. S. 2668181, issued to Standard Oil Development Company.

Briefly, olefins such as ethylene, are reacted with primary and secondary aliphatic or cycloaliphatic alcohols in the presence of a peroxide type activator at comparatively low temperatures and pressures to produce an alcohol of increased molecular weight due to the incorporation therein of one or more moles of the olefin. Thus, low molecular weight alcohols of the type: $H(C_2H_4)_x$-CH_2OH, where x is one to 18, preferably two to nine, are produced in good yields when ethylene is reacted with methanol in the presence of a peroxide activator at 150° C. and at pressures of about 1000 p.s.i.g. for four to five hours. Tertiary alcohols do not react to form an alcohol addition product. In their presence the olefin is converted to a hydrocarbon polymer containing only carbon and hydrogen. Examples of peroxide activators are t-butyl hydroperoxide, benzoyl peroxide, cumene hydroperoxide and di-t-butyl peroxide.

The patent contains a lot of technical details concerning the reaction conditions, reaction mechanism, reactants and nature of the product obtained.

The data in the table, taken from the patent, are said to be typical as regards ethylene-alcohol products.

(*Continued on page 444*)

SYNTHESIS AND PROPERTIES OF ETHYLENE—ALCOHOL PRODUCTS

Run No.	Diluent		DTBP[1] (gms.)	Reaction Conditions[2]		Product Yield[3]	
	Type	Vol. (ml.)		Pressure (p. s. i.)	Temp. (° C.)	Gms.	Gm. P./ Gm. A.	M. P./ M. A.
1	iC_3H_7OH	1,800	59.5	1,000	146	750	12.6	0.5
2	iC_3H_7OH	1,800	59.5	500	146	590	9.9	0.1
3	sC_4H_9OH	1,800	59.5	1,000	146	650	11.0	5.3
4	tC_4H_9OH	1,040	59.5	1,000	145	180	3.0	—
5	Cyclohexanol	1,040	59.5	1,000	145	435	7.3	—
6	C_5H_9OH	1,800	59.5	1,500	145	806	13.5	4.6
7	C_5H_9OH	1,800	59.5	1,000	166	638	11.7	6.2
8	C_5H_9OH	1,800	59.5	1,000	145	517	8.7	4.6
9	C_5H_9OH	1,800	59.5	750	145	410	6.9	4.8
10	C_5H_9OH	1,800	59.5	750	125	278	4.7	2.0
11	C_5H_9OH	1,800	59.5	500	145	315	5.3	5.5
12	C_5H_9OH	1,800	59.5	250	145	220	3.7	4.5
13	C_5H_9OH	1,800	40.0	1,000	145	340	8.5	4.3
14	C_5H_9OH	1,040	59.5	1,000	145	525	8.8	(4.3)
15	CH_3OH	1,800	59.5	1,000	166	347	5.8	2.4
16	CH_3OH	1,800	59.5	500	145	165	2.8	2.3
17	t-C_4H_9OH	—	59.5	1,000	145	548	9.2	—
18	2-Me-2-C_4H_9OH	—	59.5	1,000	145	614	10.3	—

[1] DTBP—di-t-butylperoxide.
[2] Reaction time—five hours.
[3] Gm. P./Gm. A. = Grams product per gram of DTBP; M. P./M. A. = Moles product per mole of DTBP.

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Abreast Of The Markets

Markets Becoming More Active, in Anticipation of Spring Season; Menthol, Vanilla Beans Firm

Activity in the markets continued last month. The essential oils showed increased demand in a number of oils, including those which have a heavy use in the spring and summer seasons. Various conditions in the botanical field have caused shortages or higher prices in these commodities.

In regard to the citrus oils, lemon oil is expected to be quite firm as the warmer months approach, because there has been a considerable demand for the item already. This has tended to reduce the available stocks at a time of the year when the consumer interest begins to increase greatly.

On the botanical side, agar agar is expected to become much firmer than it already is because of a shortage of material at the origin. At the same time, other botanicals are proving to be equally as firm, as in the case of buchu leaves, arnica flowers and balsam tolu.

Two noteworthy changes took place in the fine-chemical field last month. Glycerine was reduced by four cents a pound, the first such decline since September of last year, and Vitamin B_{12} was reduced, this being the first decline since 1952.

The activity in the essential oils does not show itself in the graph on page 427 which remained at 140.9, since none of the oils concerned changed in price during February. The botanicals index declined a slight amount, from 213.8 to 211.0, in spite of the fact that agar agar, balsam tolu and buchu leaves all advanced. These increases were all counterbalanced by a 10-cent decline in Curacao aloes.

The index for 50 commodities advanced from 128.1 to 128.2, and the index for the cosmetic raw materials went up slightly from 141.2 to 141.8. Since there were no price changes in those items affecting the medicinal chemicals chart, this particular index remained at 104.2, the same level as in the preceding month.

Prices quoted in this section were current on the first of this month.

Vitamin B_{12} Down

For the first time since 1952, the price of vitamin B_{12} went down, the reduction amounting to $50 a gram. The reason behind the price change was said to be lower manufacturing costs. Crystalline vitamin B_{12} is now being quoted at $245 a gram.

Cream of Tartar Situation

Because the shipping prices on tartaric acid from Italy have been raised, there is some speculation in the trade that there will soon be higher replacement costs quoted for cream of tartar.

Mercury Holds Firm

There have been recent arrivals of quicksilver from Yugoslavia, but these are not expected to bring about any changes in the price structure of the metal. The range still extends between $191 and $193 a flask.

Menthol Firmer

Brazilian menthol showed signs of becoming firmer last month, although it was still possible to purchase quantities of it within the range of $5 and $5.25 a pound. In recent months there has been just a small demand for the Brazilian material, a factor which has tended to discourage the exporters. Another dampening favor is the low range of prices now in effect in the European market for Chinese menthol.

As for the Japanese menthol, this is very limited in supply, the spot market quoting it at $11 a pound.

Anethol Continues Active

Interest in anethol remained fairly active last month, and dealers were finding no difficulty in filling all requirements. The item was being quoted from $1.25 to $1.85 a pound.

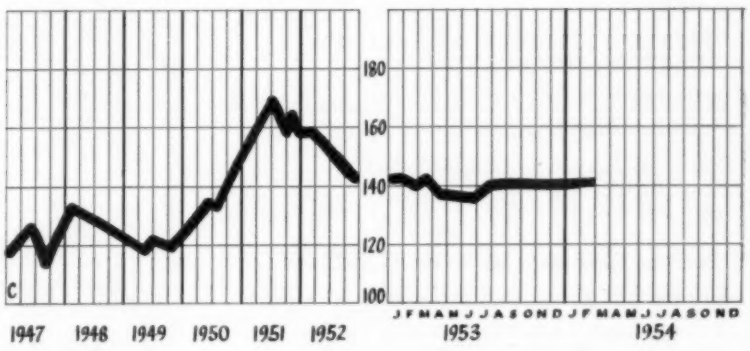
Vanilla Beans Much Firmer

Vanilla beans continued to show sharp advancement last month. Sources in the trade indicated that most of the vanilla beans have been sold from the previous crop. The 1953 material, expected in April and May of this year, will have to satisfy the demand.

Prices on the beans at the end of February ranged from $9 to $9.50 for the Bourbon variety; $8.50 to $8.75 for Mexican cuts; $8.75 to $9.50 for Mexican whole beans; and $7.50 to $7.75 for the Tahiti beans.

(Continued on page 426)

25 Cosmetic Raw Materials—Unweighted Price Index. 1926=100.



The cosmetic raw materials index advanced slightly from 141.2 to 141.8. Balsam tolu was up, glycerine was down.

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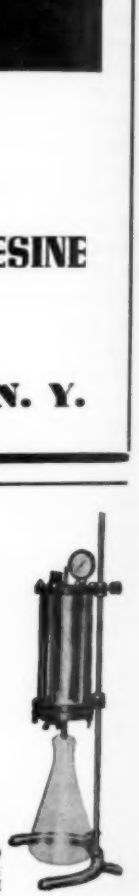
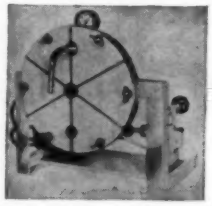


MODEL No. 10 CYLINDER TYPE



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Seaweed Derivatives Sought by Scottish Gov't; Agar Stocks Very Low; Indonesian Firm Begins Making Penicillin Products

The Scottish Government is interested in developing new or old industries which would use large quantities of seaweed as a principal raw material.

Surveys indicate that up to one million long tons of seaweed could be harvested in Scottish waters each year by commercial methods without risk of depletion.

Extraction processes for the principal seaweed constituents other than alginic acid have been worked out, yielding mannitol, laminarin, and fucoidin. Comparative costs of production by Scottish seaweed methods and those of producing U. S. synthetic mannitol are said to give the seaweed derivative a chance of being at least competitive.

One Scottish firm prepares fertilizer and animal foods from seaweed. It is also stated to be producing for export to the United States tablets and powder for human consumption, the tablets to be consumed directly, and the powder to be used in the manufacture of multivitamin and mineral pills.

Agar in Very Short Supply

Most dealers in New York say that there is very little agar agar on the spot market. In addition, the new crop material which is expected to arrive in this country in May is being quoted at the present time at prices equally as firm as the currently limited material. The price of agar agar toward the end of February ranged from $3.50 to $4 a pound. The chief cause for the present shortage has been attributed to a mild winter which was felt in Japan this year.

In order to produce agar of high quality and in large quantities, cold, freezing weather is required. How long the tight supply situation will last depends entirely on the size of the new crop. At the present time, the dealers who have any agar to sell are holding them for their customers only.

Antibiotics in Indonesia

An Indonesian medicine manufacturing firm, according to *Foreign Commerce Weekly*, which is also a leading postwar importer and wholesaler of pharmaceuticals in Djakarta, is starting production of penicillin products this month. This will be the country's first antibiotic processor.

The company plans to import penicillin in bulk, mix and package it in Indonesia, and sell it at the same price as is charged for the packaged, imported article. The new factory hopes to increase the availability of antibiotics in Indonesia and to afford a foreign-exchange saving for the Government. A maximum production of 5,000 capsules of antibiotics per hour is anticipated.

More Camphor from Taiwan

The lower price of synthetic camphor in the world market, has prompted the Taiwan (Formosa) Government to establish 1954 production goals of camphor at 272,280 kilograms (1 kilogram = 2.2046 pounds) of refined natural camphor, and 240,000 kilograms of byproducts.

The 1953 production goal for refined camphor was revised from 384,178 kilograms to 270,240 kilograms, and a goal of 240,000 kilograms was established for byproducts.

Safrol Higher

Safrol prices went up in February to $1.05 a pound as a result of a continuing firmness in sassafras oil. It was the general belief that this item will continue to advance.

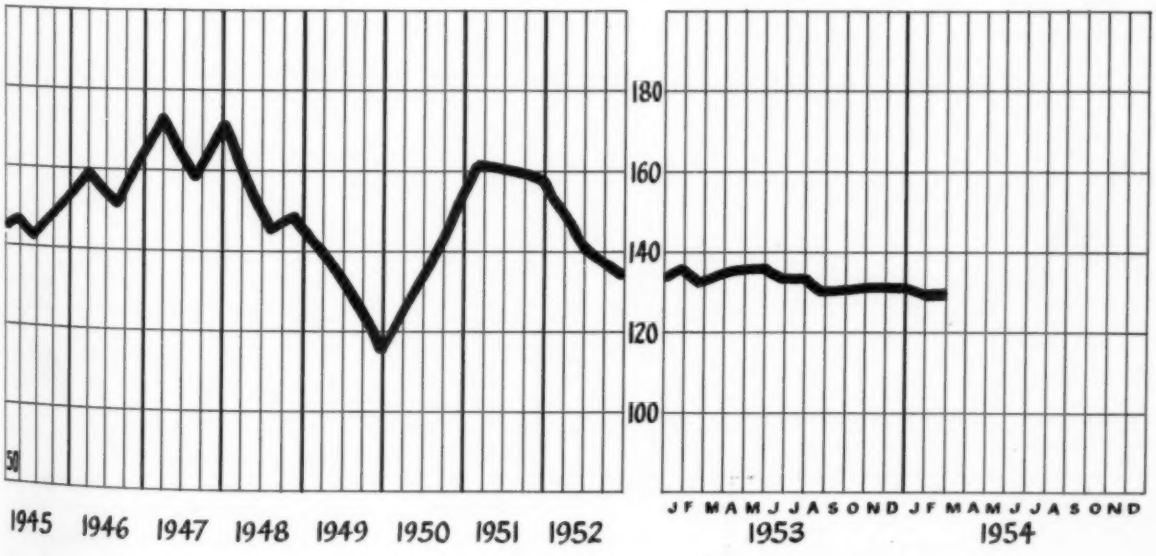
Glycerine Reduced 4c

Refined Glycerine prices were lowered four cents a pound last month, the first reduction since September, 1953. The U.S.P. glycerine is now quoted at 29 cents in tankcars.

Arnica Flowers Higher

Stocks of arnica flowers are extremely limited in the spot market, and the price has increased to $1 a pound as a minimum figure. Some buyers are paying up to $1.10 for the true Montana variety. Sources in the trade indicate

50 Raw Materials—Weighted Price Index. 1926=100.



The price index of fifty commodities for February advanced very slightly from 128.1 to 128.2.

FEBRUARY PRICE CHANGES

UP

Agar Agar, No. 1 50c
Arnica Flowers 25c
Balsam Tolu $1.25
Buchu Leaves 3c
Cocao Butter 8c
Safrol 5c
Vanilla Beans, Bourbon $2.25
Mexican cuts $1.75
Mexican Whole $1.75
Tahiti $2

DOWN

Almond Oil, Sweet 5c
Aloes, Curacao 10c
Carnauba Wax, No. 1 1c
Dandelion Root 7c
Glycerine 4c
Musk Root 75c

that if the present trend continues in the same way, there will soon be no stocks left in this country at all.

Balsam Tolu Higher

Replacements of balsam tolu are more difficult to obtain, and by last month were priced at $3.50 a pound. It was the general feeling that the figure would probably move up to $4 in the near future.

Vanilla Beans Much Firmer

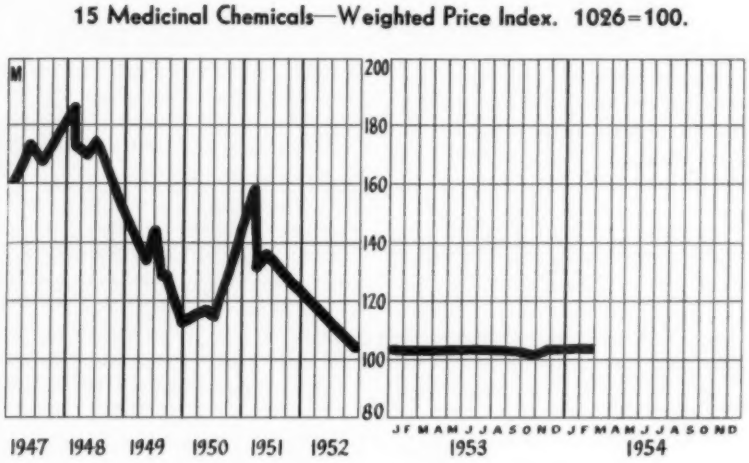
(*Continued from page 423*)

It is the belief in the trade that prices of vanilla beans will continue to follow the advancing trend for some time yet, until consumers are no longer willing to go along with the increases.

Buchu Leaves Higher

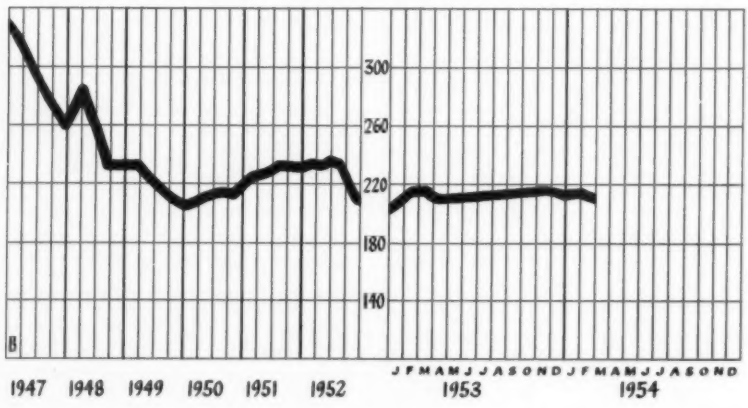
Although the new crop material of buchu leaves is due at this time of the year, sources at the origin have been informing dealers in this country of firmer price views. Toward the end of last month, buchu leaves were being quoted as high as 45 cents a pound, ranging up to 50 cents.

15 Medicinal Chemicals—Weighted Price Index. 1926=100.



The medicinal chemicals index remained at 104.2.
There were no changes.

15 Botanicals—Weighted Price Index. 1926=100.



The botanicals index declined from 213.8 to 211.0.
Agar, balsam tolu and buchu leaves were higher; aloes was lower.

Cocoa Butter Higher

The price of cocoa butter advanced in February to $1.18 a pound and, according to sources in the trade, this high price level was having an adverse effect on the market.

Ipecac Root Tight

Although demand for ipecac root was said to be quite steady, the item was becoming firmer, according to sources in the trade, owing to supply problems at the origin. The root was selling at $6 a pound in February, ranging up to $6.25.

Balsam Copaiba Firmer

There were no changes in balsam copaiba; however, there are signs that this botanical is becoming firmer as a result of the higher replacement costs which will have to be met in the future. Spot prices are being quoted from $1 to $1.25 a pound.

Clove Oil May Be Firmer

Although clove oil was selling within the range of $4.25 and $5 a pound in February, and although there were signs of lower quotations in some quarters, spokesmen indicated that a reversal may occur shortly.

Cajeput Oil May Strengthen

Although there has been no price change in cajeput oil up to the present time, sources believe there will be an increase over the current $2.50 level. It appears that the cost of replacement is becoming greater and will soon be reflected on the spot market.

Bois de Rose Oil Steady

Brazilian bois de rose oil was still being quoted in the range between $4.10 and $4.75 a pound by the end of February, although there were reports to the effect that producers at the origin were attempting to force the price higher. It does not seem that these producers will be successful, for a while any way, in advancing the bois de rose prices, chiefly because there is a considerable amount of oil available at the present time which will probably answer all needs for many months.

Lemon Oil Expected to Be Tight

Lemon oil continued to be priced from $7.25 to $7.65 a pound for the domestic material. Since there has been a rather active demand for the item in recent months, dealers have not been able to build up their stocks to any degree. As a result, it is feared that, as the approaching Spring demand begins to be felt, a shortage may occur.

Italian oil was being quoted from $6.50 to $10.

Grapefruit Oil in Better Supply

Some changes were noted in the price structure of this oil during February, with a few scattered quotations being around $2.80 a pound, but on the whole the range continued to extend from $3 to $3.50 a pound. There is a limited demand for this oil most of the time, but in spite of this, a tight supply position has been developing over the past few months. It looks now as if this shortage is over, and there will be a relief in the oil shortly.

Cardamom Oil Very Firm

There is very little cardamom oil to be had on the spot market at the present time. As a result the current prices which range from $40 to $45 a pound are very much on the nominal side.

Lime Oil Steady

Lime oil was in a favorable position last month, with demand remaining on the light side. Dealers have been able to fill all orders with no trouble. As the consuming season gets under way in another month, spokesmen expected more interest in the item very soon. Prices on the distilled oil ranged from $6.35 to $7 and the expressed, from $7.85 to $8.50.

Citronella Oil Limited

Citronella oil was being quoted from 80 to 90 cents for the Ceylon material, and 72 cents to $1 for the Java oil. Formosan oil was said to be in very short supply, and sources in the trade expect price advances in the near future.

Patchouli Oil Firm

Although patchouli oil was still selling at prices ranging from $7.75 to $9.25 last month on the spot market, reports indicated that sources at the origin had much firmer ideas. These higher prices have not had any effect on the oil in this country as yet. Spokesmen believe, however, that there will be a considerable hike in prices in the future.

Cinnamon Bark Oil Firmer

No price change occurred in cinnamon bark oil in February; however, it is believed that quotations will advance over the present $29 level in the near future.

Camphor Oil Increase is Expected

Owing to an increased cost of source materials, the price of camphor oil is expected to advance in the near future. Sassafrassy is selling for 35 cents, and the white camphor oil, for 26 cents a pound.

Anise Oil Still Available

In spite of the embargo on Chinese products, there is still some anise oil to be had in the spot market. Some dealers report that it is of Dutch origin which in turn was obtained from China by an indirect route.

Bergamot Oil Remains at $11.25

There was no change in the price of bergamot oil last month, although the producing season in Italy is drawing to a close. There is apparently enough material on spot to handle all needs for the present time. Some sources are of the opinion that an advance may take place in the future as the supply picture become more firm, while others do not believe there will be any noticeable change.

Lemongrass Oil Higher

Lemongrass oil advanced by 5 cents last month and is now quoted within the range of $1.50 and $2. While the material has been advancing in price at the origin, the spot market quotations have been slow to reflect the change. By the end of February, however, the oil was becoming rather limited in supply, and the firmness was becoming more pronounced.

Cedarleaf Oil Firm

Although there were no price changes in cedarleaf oil during February, spot stocks were very much on the firm side. The oil was selling at $2.35 a pound by the end of the month. Some degree of relief is expected to be felt supply-wise in the next few weeks.

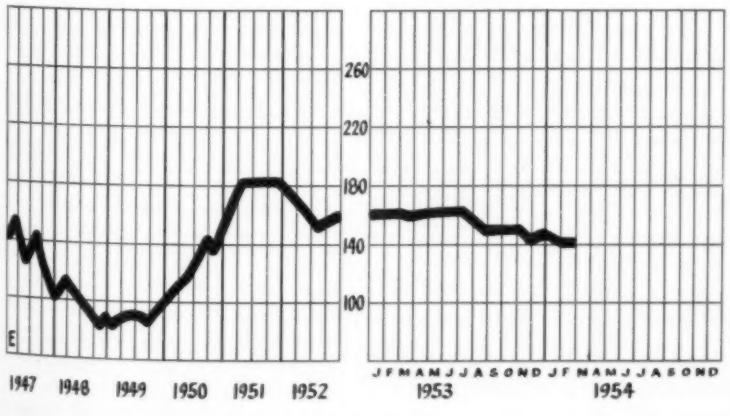
Eucalyptus Oil Quiet

Eucalyptus oil was selling in the range between 80 and 90 cents in February, with the belief in the trade that it would remain sluggish for the present because of a small demand.

Peppermint Oil Steady

Both the natural and redistilled peppermint oils held firm last month, with the former selling for $6 a pound, and the latter, at $6.50. Since there is a limited supply of high-test oil which consumers blend with the lower grades this condition has brought about a definite firmness in the market.

15 Essential Oils—Weighted Price Index. 1926=100



The essential oils index remained at 140.9.
There were no changes.

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Industry's Books

Health Yearbook 1953, *compiled by Oliver E. Byrd, M.D., Professor of Health Education, Stanford University, 280 pp., Stanford University Press, Stanford, Calif., Cloth,* **$3.50.**

The difficulty of keeping abreast of the many new developments relative to work for improved personal, community, and school health is a problem facing health workers, teachers, and others interested in health education. This is a problem to which Dr. Oliver E. Byrd, because of his education and medical background, has made a distinct contribution through his annual publication of the Health Instruction Yearbook. The present eleventh annual Yearbook brings to the reader skillful digests and resumes of a great many recent articles and books pertaining to broad aspects of health, including world health problems, safety, and school and community health.

Tests and Standards for New and Nonofficial Remedies (1953), *issued by The Chemical Laboratory, American Medical Association, 327 pp., J. B. Lippincott Co., Phila., Cloth,* **$4.**

This work contains definitions, structural formulas, physical descriptions, tests for identity and purity, methods of assay for the active ingredients and dosage forms and tolerance limits of drugs accepted by the Council on Pharmacy and Chemistry for which official standards are not available. In past years these monographs were incorporated as Section B of New and Nonofficial Remedies. Other sections of New and Nonofficial Remedies were primarily of medical interest. A survey indicated that interest in the book was either medical or pharmaceutical and few users needed to refer to both sections. For this reason the decision was made to split the book. As a result of this decision and in order to make the book complete and independent of the chemical aspects of New and Nonofficial Remedies, structural formulas and an index have been incorporated. Following each monograph there is a list of Council-accepted trade names for the drug described in that monograph.

British Veterinary Codex 1953, *published by direction of the Council of the Pharmaceutical Society of Great Britain, 737 pp., The Pharmaceutical Press, London, Cloth,* **45s.**

The British Veterinary Codex has been prepared by direction of the Council of the Pharmaceutical Society of Great Britain, with the help and advice of the Royal College of Veterinary Surgeons and the British Veterinary Association, to supply standards for the numerous substances and preparations used in the prophylaxis and treatment of animal diseases and to give authoritative information on their action and uses. The treatment of a wide variety of animals is examined and details are provided of appropriate doses of drugs which have been found effective in horses, cattle, sheep, pigs, dogs, cats, as well as in poultry. A special feature is the inclusion for the first time within one book of detailed standards for all the important vaccines, sera and related products used in veterinary practice. The book also contains over 300 formulae, a therapeutic and pharmacological index, a list of trade and other names, many useful tables, and a comprehensive general index.

Wonders of Modern Medicine, *by Steven M. Spencer, 276 pp., McGraw-Hill Book Co., Inc., New York, (1953), Cloth,* **$4.**

The author of this work tells the fascinating story, in human terms of the frontier areas which the modern medical pioneers have explored and conquered in the years of the nineteen forties and fifties. He reveals how 55,000 volunteers, aged one to eleven, helped prove the value of a spectacular new weapon against polio; how new drugs are being perfected that will put an end to the terrible toll exacted by the most destructive germ on earth, the tuberculosis bacillus; how the atomic-energy program has given new directions to the conquering of brain tumors and thyroid; how plastics are coming to the rescue in fighting congestive heart disease and dropsy; how powerful chemical weapons are waging new and more effective warfare against such killers as cancer, diabetes, and arthritis. Steven Spencer takes you into the laboratory and hospital and actually shows you the medical teams at work. He reveals surgeons repairing damaged heart valves, doctors working hand in hand with chemists to bring a new ray of hope into the dark corners of children's cancer wards. Wonders of Modern Medicine is good medical reporting.

The Pharmaceutical Pocket Book, *sixteenth Ed., Published by direction of the Council of the Pharmaceutical Society of Great Britain, 422 pp., (1953), The Pharmaceutical Press, London,* **18s. 6d.**

The purpose of the Pharmaceutical Pocket Book is to supply in summarized form information appertaining to the practice of pharmacy in all its aspects. After an introductory note on the activities of the Pharmaceutical Society of Great Britain, there follow sections describing dispensing procedure, including that used in homoeopathy, equivalents in the Imperial system of formulae in the British Pharmacopoeia, tables of official doses, and a list of abbreviations used in prescriptions. Tables give the solubility of various pharmaceutical chemicals, particulars of antifreeze solutions, thermometric equivalents, and there are notes on the removal of stains. A lengthy section provides details of various Acts of Parliament and Regulations which affect the practice of pharmacy. There is a section on symptoms of poisoning and antidotes with notes on treatment in special cases. Sections are also included on biochemical analysis, with instructions for the examination of urine, blood, cerebrospinal fluid, etc., microbiology, antiseptics and disinfectants, infectious diseases, food and diet, with brief descriptions of the vitamins and particulars of the vitamin content of official preparations, the endocrine organs and hormones, a veterinary posological table, and summarized information in tabular form on the definition, natural origin, geographical source and chief constituents of crude drugs and fixed and volatile oils.

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GLYCERINE IN COSMETICS

(Continued from page 353)

I should like to see a more fundamental physical chemistry study made of glycerine to see if many of its interesting, yet varied, properties cannot be integrated and explained more simply. For example: Is the strong hydrogen bonding property of glycerine a basis and an explanation for such terms now used as hydroscopic nature of glycerine, the humectant character of glycerine, the strong solvent action of glycerine, the high viscosity of glycerine, and the plasticizing action of glycerine on such widely variant materials as proteins such as gelatine, casein, zein, glue and gluten, carboxymethyl cellulose, amylose and starch, polyvinyl alcohols, alginates, pectates, cellulose and regenerated cellulose and methylcellulose?

The second thing is a warning. The one cloud, maybe "no bigger than a man's head" to use a biblical phrase, that might effect the future of glycerine in cosmetics already has been mentioned. Whether other polyhydroxy compounds such as sorbitol and propylene glycol will grow to cloud size and threaten to rain out the entire use of glycerine depends largely on the glycerine producers.

Nothing can prevent this from happening so much as an assured stable market of glycerine brought about by a competitive price and easy availability.

There appear to be two important factors which will certainly influence the glycerine market. Large new uses for tallow in animal feeds will probably increase. This may drive tallow prices out of the reach of the export market. The export market does increase glycerine output whereas the feed use loses glycerine completely since the tallow is burned by the animals and not added to his recoverable body fat. The other and perhaps the greatest stabilizing influence on the glycerine market is the production of a synthetic glycerine. It would seem that the cost of production of this synthetic material would be sufficiently low so that glycerine could be sold at price levels that would be competitive to other polyhydric alcohols with which glycerine has shared most of its end uses.

MEDICINE'S NEW TASTE

(Continued from page 349)

chemist may draw with confidence in his never-ending search for better palatability in medicines.

Many a flavor in a pharmaceutical will only attain its highest degree of efficient action in the presence of a sweetening agent. Since pharmaceuticals are often bitter, the use of sweetening agents is frequently recommended. Other non-aromatic adjuncts, often resorted to by the flavor chemist, are acid, sugar, salt, and glycerine. It is interesting to note the quantity of flavor necessary to achieve a desirable improvement of the medicine's taste. Ordinarily quite small, it will seldom

represent a prohibitive cost factor in the final preparation.

Necessity for Laboratory Experimentation

The foregoing data were obtained as a result of experimentation in our laboratories. They represent a cross-section of present day flavor usage as it pertains to pharmaceuticals. What they show us is the infinite variety of flavors, products, and methods of application. This variety, coupled with the fact that chemically and therapeutically identical medicines may, nevertheless, require totally different flavors due to certain physical characteristics, quickly dispels any thought of a clear-cut rule as to what flavor should be used in what product and at what concentration. The answer will emerge only as a result of practical testing upon which, in many cases, the manufacturer's likes and dislikes exercise a guiding influence. To cite an example, there might be mentioned one of the new high blood level penicillin products that has recently appeared on the market under various trade names. One prominent manufacturer flavors it with chocolate, while another equally important producer uses peach, the two products in their potency and chemical composition being identical. All this proves the necessity for experimentation in the laboratory. The manufacturer, therefore, should submit his unflavored product with the most detailed information possible about its application and composition to the skilled flavorist, in order that he in turn may devote his time to actual trials with the great number of flavoring substances at his disposal.

Current Market Trends and Future Outlook

In conclusion, let us look at the future. What does it hold in store?

The September, 1953, issue of the *Journal of the American Pharmaceutical Association* lists not less than 112 new pharmaceutical products that appeared on the market during the preceding six months. Roughly, that is two new products every three days. The flooding of the market with new products continues unabated. Retail druggists are so deluged with new pharmaceutical specialties they can hardly cope with them. Sulfa drugs, vitamins, antibiotics, antihistamines, "wonder drugs" were mostly unheard of a decade or two ago. Not all of these require flavors, of course, but a great many do.

Trade journal advertising shows a definite trend towards emphasis on the flavor angle and flavor consciousness. One leading manufacturer of antibiotics for pediatric use goes so far as to insert the facsimile of a sealing tag in his ad, reading "Taste Tested, Approved, Junior Taste Panel."

Longer life expectancy and recent clinical studies have raised geriatric preparations into prominence which, in itself, will open a new field to the use of flavors. Thus, we may easily see that just the surface has been scratched.

The taste of pharmaceuticals has come a long way

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Modulan is extremely hydrophobic – does not form greasy emulsions and is practically odorless. CLINICAL INVESTIGATIONS HAVE INDICATED THAT IT IS HYPO-ALLERGENIC.

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since the old days, when bitterness seemed more or less a characteristic essential to a good medicine. Only by providing better taste for more medicines than ever before, will the flavor industry be able to take its rightful place among those whose combined effort is helping to safeguard the health of every man, woman, and child in America.

CHOLESTEROL

(*Continued from page 357*)

perature of 140° C. for two minutes. The textiles react superficially with water repellents.

Substances for addition to cleansing, wetting out, foaming and dispersing baths in the textile and leather industries have been obtained in the form of sulfonated ethers or esters of cholesterol, and a polyhydric alcohol containing one or more mono-esterified acid radicals of boron or phosphorus.

Small percentages added to spinning lubricants impart in the yarns an excellent softness, as cholesterol has a strong affinity for fibres. It is also reported to be useful in kier boiling, leading to softness and fluffiness of the textile; also in its ability to disperse, stabilize, solubilize and promote even penetration of practically all dyes and to act as a useful finishing agent for cotton, silk, wool and rayon.[114]

In spraying, coning and other textile oils, the addition of small percentages of cholesterol lowers their interfacial surface tension to produce efficient wetting, spreading and penetration and ease their removal.

A study has been made of the influence of cholesterol on the photographic properties of hide gelatin.[104]

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(Continued on page 434)

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KOMMON SCENTS!

Most controversial figure in the country today appears to be the President of the United States. The Democrats praise him for adopting New Deal-Fair Deal policies; Republicans, because he's proving the inefficiency of New Deal-Fair Deal policies.

•

Eisenhower will be remembered for several contributions to this country's history. But it is doubtful whether he will have any competitor as a leader respected for completely opposite reasons.

•

The President's stand on the Bricker Amendment is believed by many to have been his declaration of Republican Party independence. There are some so bold to believe that Eisenhower was nearly as independent as when he defeated the Conservative forces at the Republican National Convention.

•

The Democrats are having their hands full trying to convince the voter that the man who is allegedly using their policies is a reactionary. It's a contradiction in terms, like trying to convince a baseball manager that a power hitter is one who hits a long fly to the infield.

•

Among major blessings in the Eisenhower controversy with Senator Bricker is the absence from Page One for awhile of Senator McCarthy. For awhile, highly taxed people were beginning to wonder whether it was more important to get the Red out of the country or vice versa.

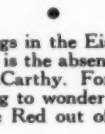
•

The position of Secretary of State John Foster Dulles has been strengthened by time. Originally pre-election supporter of the Bricker Amendment, he seems to have learned that it's easier to rap the opposition than to achieve rapport in one's own party.

•

The Cosmetic Industry maintains its traditional aloofness in things political. The way business is going, the difference between a Democratic administration and Republican is like the talk about Recession and a Depression: There are those who say there's no difference and others who say there's no trouble.

George Fiedler



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(*Continued from page 433*)

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MODERN INHALATION THERAPY

(*Continued from page 343*)

One of the most important clinical uses for epinephrine is to relax the bronchial musculature; its action in the treatment of asthma being both prompt and reliable.[17] Although patients with intractable asthma are largely refractory to injections of the drug, topical application of one per cent epinephrine often provides considerable help in the relief of dyspnea and in the expectoration of mucus and mucopurulent secretions. This is generally carried out by a flow of four to five liters of oxygen through a fine nebulizer containing the epinephrine solution. More effective control of dyspnea is obtained when a mixture of 80 per cent helium with 20 per cent oxygen is used to nebulize the medicated fluid.

The importance of this usage is reflected in the fact that the U.S.P. contains an official epinephrine inhalation, in the form of a 1:100 solution. Because of its beneficial effects, glycerine is frequently included in the solution. Abramson[2,18] mentions that in 1945, the army adopted a stock solution of one per cent of epinephrine salt containing 25 per cent of glycerine. This concentration of glycerine, says he, brings aerosol therapy with epinephrine into an area of optimal predictability. A glycerite of epinephrine (Azodrine) is also available for use in the inhalation therapy of bronchial asthma and other conditions.

In addition to epinephrine, several sympathomimetic amines are available for inhalation therapy. For ex-

ample, considerable attention has been given to phenylphrine hydrochloride (Neo-Synephrine). Aerosols of one per cent solutions of this drug, carried out by a flow of oxygen or oxygen-helium mixture, produce favorable bronchial delatation in cases of severe asthma.[16] Koelsche[8] mentions that the drug's unpleasant effects on the pharangeal mucosa, which may be observed after continuous therapy, may be avoided if the medication is placed in a 50 per cent solution of glycerine before nebulization. He states that he has used a 0.25 per cent solution of Neo-Synephrine in combination with penicillin for as long as two weeks without any evidence of unpleasant side-effects.

Karp[4] lists isopropylarterenol hydrochloride (Isuprel) high among the sympathomimetic amines that are useful in the aerosol therapy of bronchial asthma. She mentions that a mixture of equal parts of Vaponefrin (a 2.25 per cent solution of specially prepared racemic epinephrine hydrochloride) and either two per cent tripelennamine hydrochloride (Pyribenzamine) or dephenhydramine hydrochloride (Benadryl) is a valuable aerosol in the management of many cases of bronchospasm.

Mention should also be made of the volatile sympathomimetic drugs that are of considerable benefit in providing relief of the symptoms of hay fever and the common cold. Generally combined with helpful aromatic substances, these agents are usually dispensed in small plastic containers that facilitate inhalation through the nostrils. Used at suitable intervals, such inhalers serve to "clear" the head and provide much local comfort.[10]

The official product of this type, amphetamine inhalant, U.S.P. XIV, is useful for shrinking the nasal mucosa. The 1953 edition of New and Nonofficial Remedies cites several other inhalers; the list including products based on methylhexaneamine (Inhaler Forthane), phenylpropylmethylamine (Inhaler Vonedrine), prophylhexdrine (Inhaler Benzedrex), and tauminoheptane (Inhaler Tuamine).

Also worth a passing note are inhalants dispensed in the newer plastic bottles fitted with special nebulizing tips. The tip is inserted in the nostril, and a quick squeeze of the bottle provides a mist or spray that is distributed throughout the nasal passages. Providing beneficial effects in cases of the common cold, rhinitis, hay fever and sinusitus, the active agent may consist of a nasal decongestant, such as one of the sympathomimetic drugs, an antihistamine, or a combination of such agents. An antibacterial agent is sometimes included in the solution. Essentially, these products are convenient modifications of the familiar nasal spray bottles equipped with hand bulbs for creating a spray.

Aminophylline (theophylline ethylenediamine), a potent vasodilator, holds a prominent place among drugs now being successfully administered as aerosols.[19] In this form, aminophylline may be effective when intravenous administration may be ineffectual.[4] A few years ago, Prigal[20] and his associates reported the use of such an aerosol in 40 patients with bronchial asthma.

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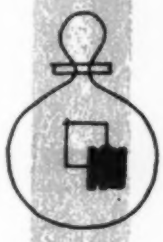

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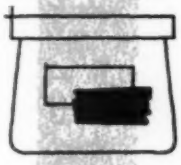

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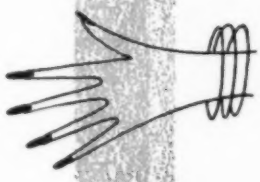

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Of these cases, 80 per cent obtained some symptomatic relief which was marked and of long duration in some instances, but only slight and temporary in others.

European workers[21] have administered bronchodilating aroesols of epinephrine and theophylline substances, alone or in combination, to patients with dyspnea of of cardiac origin. The patients showed good tolerance to the inhalation of these aerosols, which were administered through an oral dispenser. In considering the mechanism by which the benefits were obtained, the investigators are of the opinion that epinephrine aerosols control bronchial spasm as well as blood stagnation in the pulmonary vessels and that they stimulate general circulation. Theophylline aerosols control bronchial spasm and stimulate central nervous reflexes, through which respiration and cardiocirculatory functions improve.

In an effort to liquefy the tenacious sputum often seen in bronchial asthma, and to facilitate its expectoration, some clinicians[5] have experimented with an ammonium chloride aerosol, alone or in combination with an aminophylline aerosol. The inhalation of 10 cc. of a five per cent solution of ammonium chloride has been found effective in the treatment of asthma by its solvent action on tenacious mucous plugs. It has also been found that mixtures of aminophylline and ammonium chloride may be beneficial before penicillin aerosol therapy.[4]

Old-fashioned asthma powders have also been modernized for use in inhalation therapy. Thus, Barach[16] points out that the combination f stramonium and potassium nitrate found in commercial asthma powders and cigarettes often relieves asthmatic paroxysms. Stramonium belongs to the atropine group of drugs and presumably depresses the vagus nerve endings in the bronchi. However, acquired sensitization to stramonium has been reported. After making these observations, Barach states that the following solution for nebulization therapy has been of help in mild cases:

Atropine	0.15 Gm.
Sodium nitrate	0.60 Gm.
Glycerine	8.00 Gm.
Water, to make	30.00 Gm.

Certain of the newer, potent drugs have proved quite effective when administered by inhalation. Illustrative is the use of cortisone in aerosol form in the treatment of bacterial pneumonia and bronchial asthma. When a patient with pneumonia was treated by Reeder and Mackey[22] with cortisone by inhalation, rapid subjective improvement and a drop in temperature resulted, even though the disease process in the lungs was apparently not affected. Noting that inhalation of cortisone appears to be as effective as parenteral administration, these workers expressed the opinion that additional comfort and relief of apprehension may be afforded the critically ill patient by the use of this substance.

Using a similar procedure, Gelfand[23] obtained beneficial results in four out of five patients with bronchial asthma of the mixed type. Relapses occurred in three of these successful cases within a few days after cessation of aerosolized cortisone, but resumption of the inhalation therapy again produced amelioration of symptoms.

Khellin, a drug extracted from the seeds of *Ammi visnaga*, has been used by Braun and Eilender[24] in the form of an aerosol spray in ten cases with acute bronchial asthma. All the patients showed an increase in the vital capacity, a decrease in dyspnea and a dimunition of wheezing and rales.

More recently, Howell[25] reported that calcium chloride aerosols gave complete relief from wheezing in 70 per cent of patients suffering from acute or chronic bronchitis. An aerosol made from a 10 per cent solution of calcium chloride was found to be most effective in producing relaxation of the bronchi. After a year's trial, no ill effects or contraindications were observed from this form of inhalation therapy.

Other recent studies point to the value of alcohol vapor inhalation in the treatment of acute pulmonary edema. In the work done by Luisada and his colleagues,[26] alcohol vapor was administered to14 patients during 17 attacks of pulmonary edema. In all but three cases the alcohol was given after failure of routine medication. In ten of the attacks, the beneficial effect was marked and prompt; while in five others there was definite improvement. These results indicated that alcohol inhalation has a favorable effect in clinical pulmonary edema, particularly of the acute paroxysmal type.

Of kindred interest is the indicative report by Reich and Rosenberg[27] on the effectiveness of 2-ethylhexananol (octanol, 2-ethylhexyl alcohol) when administered by inhalation in the therapy of acute pulmonary edema. This volatile higher alcohol, they noted, acts by decreasing foam formation, thus improving ventilation of the alveoli. In their investigations, severe attacks of acute pulmonary edema were found to respond most favorably to the combined use of intermittent positive pressure oxygen and nebulized 2-ethylhexanol.

Aerosols of the purified proteolytic enzyme trypsin (Tryptar) have provided a new and apparently effective approach to the problem of loosening and dissolving thick, tenacious mucous plugs that interfere with breathing in bronchial asthma and other respiratory conditions.[28] As remarked by Limber and his colleagues,[29] aerosol trypsin appears to be "a safe and effective means of promoting bronchial cleansing."

Following studies on 73 patients, Unger and Unger[30] concluded that inhalations of aerosol trypsin are extremely effective in ridding the upper part of the respiratory tract of thick sputum that the patient is unable to expectorate. Excellent results were obtained in most patients with bronchiectasis, acute atelectasis, and bronchial asthma complicated with bronchitis or pneumonitis; good results were secured in paroxysmal bronchial asthma. The investigators strongly recommend aerosol trypsin in these cases. The majority of patients with chronic bronchial asthma and emphysema

received little or no relief, although a few were benefited. The Ungers describe aerosol trypsin as a safe preparation to administer. However, before its use, the patient should be given epinephrine and a suitable antihistamine preparation. These drugs dilate the bronchial tree and perhaps help to lessen hoarseness, the only troublesome side-effect.

Quite interesting is the use of aerosol typsin therapy in the treatment of a boy with bulbar poliomyelitis complicated by respiratory difficulty due to the accumulation of extremely tenacious mucus. There was general improvement in the patient following each treatment, with a pronounced increase in the fluidity of the aspirated secretions.[31]

Another approach to the problem of liquefying viscid pulmonary secretions in respiratory disorders, especially in infants and children, results from the nebulizer and solution developed by Miller and his colleagues.[32,33,34] The Miller aerosol device has recently been improved by Trossman.[35] The solution used in such nebulizers depends primarily for its effectiveness on the presence of an alkylaryl polyether alcohol (Triton WR-1339), a nontoxic detergent. Now available as Alevaire, this fluid contains five per cent of glycerine, two per cent of sodium bicarbonate and 0.125 per cent of the detergent.

This preparation has been tested extensively by Ravenel[36] in a new technique of humidification in pediatrics. As a result of these studies, he feels that nebulized Alevaire has revolutionized the treatment of respiratory lesions in children. In his opinion, the widespread use of this therapy will undoubtedly save a large proportion of the 28,000 new born infants who die each year in this country from respiratory difficulties, including atelectasis.

When used in the treatment of various respiratory disorders, this solution may be used as a vehicle for penicillin, streptomycin, decongestants or bronchodilators. Indeed, in their original work, Miller and his associates[32] used such a solution to obtain better results from streptomycin aerosol therapy in cases of advanced pulmonary tuberculosis in children. More recently, Stiles[37] reported that when penicillin and streptomycin were added to the solution he obtained highly effective action in cases of laryngotracheobronchitis.

Another, but somewhat similar type of nebulin has been used by Denton and Ross[38] for continuous aerosol treatment, at controlled temperature and high humidity, of respiratory difficulties of newborn infants. Administered by means of a special nebulizer (Mist-O_2-Gen equipment), the requisite basic solution consisted of 2.5 per cent of glycerine, 2.5 per cent of propylene glycol and 0.1 per cent of Neo-Synephrine. This solution should be modified as required and, in the majority of cases, from 0.1 to 0.25 per cent of a wetting agent (Triton-A-20) may be included. Where indicated in infections, penicillin or streptomycin are added to the aerosol solution.

Of course, antibacterial agents have a well established placed in inhalation therapy. For example,

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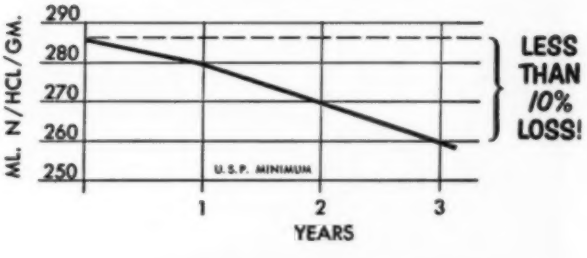

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Abramson[2] cites the use of hydrogen peroxide aerosols, in combination with penicillin therapy, in cases of asthma, asthma complicated by infectious bronchitis, bronchiectasis, and tuberculosis. In most of these cases, the peroxide aerosol was administered in the form of a solution containing three per cent urea peroxide plus 10 per cent glycerine in physiologic saline. The preliminary results in nontuberculous lung infections indicate that this combined therapy may be an important technique in the management of chronic suppurative pulmonary disease.

There is no question that the antibiotics have greatly influenced the treatment of respiratory diseases. In considering the status of inhalation therapy, Eastlake[39] points out that most workers have reported good results from the use of antibiotic aerosols in infectious conditions of the respiratory tract, ranging from the paranasal sinuses to the lungs. In some cases, such treatment has proved more effective than other methods of administration. For example, says Eastlake, it has been shown that intramuscular injection of penicillin has often failed to alleviate the symptoms of bronchiectasis, while subsequent use of an antibiotic aerosol has produced good clinical results.

As already mentioned, considerable data regarding antibiotic inhalation therapy have been given in this publication.[3] Hence it is necessary only to bring this information up to date. It is recognized,[40] for instance, that satisfactory results from inhalation therapy with antibiotics depend on the use of a suitable nebulizer, maintenance of therapeutic concentrations of these agents in the lung tissues over prolonged periods, and knowledge of the sensitivity of the bacterial content of the sputum.

It appears that penicillin remains the most important antibiotic for administration by inhalation.[41-43] In commenting on this move widespread use of penicillin, Karp[4] observes that allergic reactions to the inhalation of wet or dry penicillin aerosols are less common than when penicillin is administered intramuscularly. When reactions do occur, they are usually local in type.

Of course other antibiotics have useful roles in the inhalation therapy of respiratory conditions. As remarked by Eastlake,[39] streptomycin is of special value in the treatment of Friedlander bacillus infection (e.g. pneumonia) in any part of the respiratory tract. In his opinion, infections in the lung caused by this organism are combatted more effectively by aerosol than by intramuscular injection. In the studies made by Prigal and Molomut,[43] aerosols of bacitracin and of aureomycin proved to be highly efficient in the treatment of respiratory diseases. Quite recently, Avery[44] described aerosolized dihydrostreptomycin as "a definite adjunct" in the management of such conditions.

Well worth noting are the comparative studies made by Lammers and Herold[40] on several antibiotics. In their work, therapeutic concentrations of aureomycin, streptomycin and Terramycin were maintained in the lung tissues for from 12 to 14 hours by the administra-

tion of these antibiotics in aerosol form. They found that these agents were absorbed by the lung tissues more slowly and in smaller amounts than penicillin, and that therapeutically effective blood levels were not obtained. Significant, however, was the observation that a pronounced decrease of bacteria in the sputum resulted from inhalation of the antibiotics.

Although the sulfonamides are now little used in inhalation therapy, other chemotherapeutic agents have been employed in this way. Several clinicians[45-46] have used *para*-aminosalicylic acid aerosols in the treatment of pulmonary tuberculosis. The results were encouraging and this therapy was of benefit in some cases.

Isoniazid aerosolization has also been tried in the treatment of this condition. Several of the patients were considerably improved roentgenologically by the inhalation therapy and a number of others were benefited by combined oral and inhalation treatment. As a result of their experience, the investigators[47] recommended that isoniazid aerosols be used as adjuvants in order to prevent increased resistance of *Myocobacterium tuberculosis* to the drug.

The possibility of using medicated inhalations to treat disorders other than those of the respiratory tract is indicated in a report by Tabert.[48] He treated patients with ophthalmic migraine and with headache of nasal origin with aerosols of procaine hydrochloride or ergotamine tartrate. The results indicated that these therapeutic aerosols act more rapidly and exert a more lasting effect than any other sedative methods so far used in migraine or cephalalgia.

During recent months, considerable interest has been shown in work which suggests that vitamin B_{12} may be given by inhalation rather than by injection to patients with pernicious anemia. Studies by Monto and his colleagues[49-50] showed that inhalation therapy with crystalline vitamin B_{12} in physiologic saline resulted in adequate clinical and hemotologic responses. They also mixed the vitamin with lactose powder for administration by means of a dust inhaler. From the date obtained to date, it appears quite probable that anemic patients may be able to give themselves the requisite medication without the need for frequent visits to the doctor for injections.

It is quite evident that inhalation therapy has been established as a really modern method of treatment that offers many specific advantages. Although such procedures find their greatest use in disorders of the respiratory tract, there is no doubt that new developments will extend the value of inhalation therapy to other body systems and their diseases.

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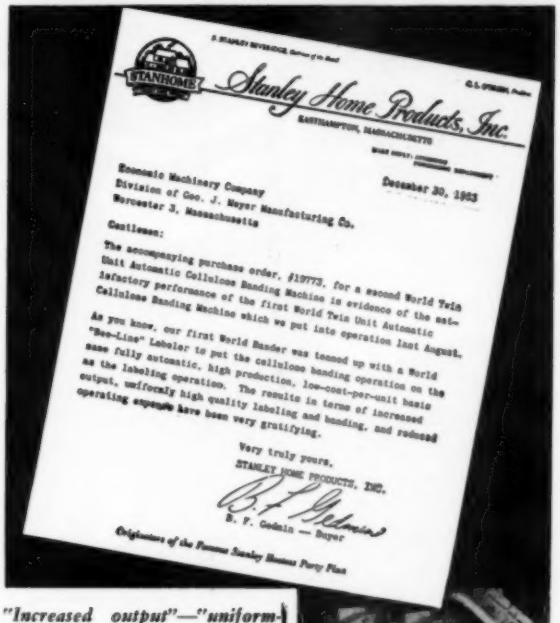
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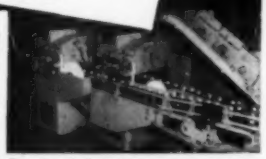

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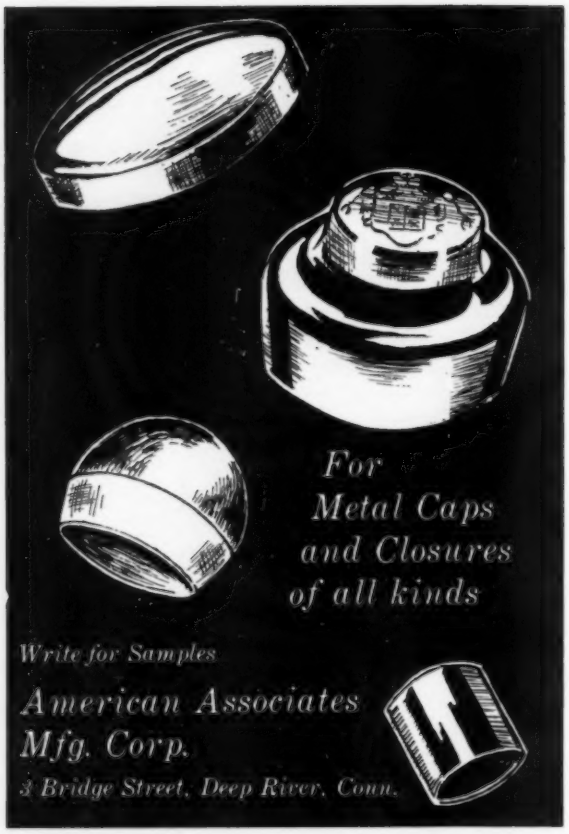

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HAIR CLIPPINGS FOR SHAMPOO EVALUATION

(*Continued from page 355*)

extractants, there is the difference that their values were based on weight of wool in the grease as used, while our value is based on grease-free wool dried at 105-110° C.; when our value is recalculated to their basis, it is 10.9 per cent. However, we feel that it is better to report all values on a grease-free, 105-110° C. oven dried basis. Shampoo A is a clear liquid containing the ammonium salt of sulfated monoglycerides of coconut fatty acids, while shampoo B is a cream containing sodium lauryl sulfate. Extractions of hair are run in 300 ml. capacity Soxhlet extractors with 250 ml. of chloroform over an open flame, with the hair in a Whatman 43 x 123 mm fat extracted seamless extraction thimble. Wool was extracted, of course, without a thimble. At the end of a three-hour extraction period with four to six cycles per hour, the small volume of solvent left in the flask is removed over a steam bath until boiling nearly ceases, when the flasks are removed to a vacuum dessiccator for one hour, then allowed to stand in air overnight. We have felt it necessary to avoid long periods of drying on the steam bath to eliminate danger of loss of shampoo components which might have remained on the hair.

In Vitro Shampoo

For shampooing, a volume of 40 ml. of shampoo or rinse is used for each gram of oven-dried hair weight, calculated from a moisture control as explained later. Thus, the 5.8 g. individual samples weigh 5.1 to 5.5 g.

on an oven-dry basis and require 204 to 220 ml. solution. Shampoo solutions and rinses previously measured into 250 ml. Erlenmeyer flasks, are brought to equilibrium in a constant temperature bath at 105° F. This is slightly higher than the value of 38° C. (100.4° F.) used by Barnett and Powers; it was arrived at by asking a number of people to adjust the temperature of a beaker of water to their preference for shampooing. The average was very close to 105° F. Hair is transferred from its storage envelope to a 500 ml. wide-mouth Erlenmeyer flask. The shampoo solution is poured over the hair, the flask is swirled once to wet all hair and then placed in a Burrell Wrist-Action Shaker for four minutes at a speed-setting of two. Timing is done on a stop watch; this is not strictly necessary, but it is a great convenience to the operator. At the end of four minutes the hair is transferred, using tongs, to a No. 3 Coors porcelain Buchner funnel suspended over an 800 ml. beaker.

When the water has drained, the hair is squeezed by the rubber-gloved operator to remove excess water and is then placed in a clean 500 ml. flask and the first rinse is added. The rinsing period is two minutes and in this time the technician is able to rinse the funnel and flasks in preparation for their next use. The hair is again filtered at the end of the two minute shaking period and a second rinse is given, like the first. The hair is then teased apart to let excess water flow out and to permit access of air and is dried at least overnight in air on a six-inch watch glass. There is always included with each day's shampoos at least one sample to be used for moisture control. When many shampoos are done, one control is used for every eight samples extracted. In preparing the hair for extraction, each air-dried sample is weighed in an aluminum dish and transferred to a paper thimble. The moisture control is weighed in a covered aluminum dish and oven-dried for three hour periods or overnight at 105-110° C. to constant weight. Usually two weighings are sufficient, although in varying weather more may be required. All weighings of samples and their moisture control should be done in a short space of time to avoid changes due to atmospheric changes once weighings have been started. From the weight of oven-dry hair in the control, the oven-dry weights of the samples for extraction are calculated.

$$\text{Oven-dry weight} = (\text{Air dry weight}) \times (\text{oven-dry weight of control} \div \text{air-dry weight of control})$$

When unwashed hair is to be extracted, the moisture control should also be unwashed hair. In other words, the moisture control must be treated like the sample for extraction if accurate results are to be obtained.

Results are based on weight of grease-free, oven-dry hair, where this is the weight of oven-dry hair (calculated as above) minus the weight of matter extractable by chloroform.

The mean difference between duplicate extractions of shampooed wool is 0.10 per cent grease, while the mean difference for hair is 0.15 per cent. The mean

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$$\% \text{ Grease on hair} = \frac{\text{weight of chloroform extract}}{\text{weight of grease-free, oven dry hair}} \times 100$$

$$\% \text{ Grease removal} = \frac{\text{(grease content of original hair—great content of sample)}}{\text{grease content of original hair}} \times 100$$

difference between duplicate values of grease removal is 0.74 per cent for wool and 2.7 per cent for hair. However, the lower value for wool is partly due to the high original grease content; on a comparable basis the values would be roughly 1.5 and 2.7 per cent. This means that precision is greater with wool than with hair, although it may be possible to improve hair by further blending; but in any case, the sacrifice in precision is more than repaid by the gain in accuracy.

Barnett and Powers pointed out that greater precision in all cases may be realized if the duplicate samples are shaken simultaneously. We have not found this to be true with hair; in fact, many of the duplicates have been shampooed on different days and extracted likewise rather than in parallel with no difference in precision.

Experiments carried out by the described technique clearly show that shampoos remove less grease from hair than from wool Results are shown in Table II.

TABLE II
Comparison of Results Using Hair Clippings and Standard Wool, 0.5 Per Cent Concentration Shampoo, Tap Water

	Per Cent Grease Removal	
Shampoo	from wool	from hair
A	67.8	21.4
B	73.5	21.6

The figures in the third column represent five different lots of hair, each of which represent twenty-five to fifty heads. The values ranged from 11 to 35 per cent grease removal. It may be well to say now in connection with the 11 per cent value, that in our early work we were not careful about accepting hair which had been shampooed soon before it was cut, and inasmuch as clean hair naturally gives up less grease than unclean hair, the low value is probably caused by the presence of much clean hair.

It is readily seen that while the work with wool falls into the range of values given by Barnett and Powers for alkyl sulfate shampoo types, removal of grease from hair is of a much lower order of magnitude than from wool. The grease content of the hair was also much lower than that of the wool, being from one-third to one-half the value. While these results indicated the expected differences between wool and hair, they did not prove that the method simulates actual shampooing conditions. To investigate this point, hair was shampooed on living models. This work was made possible through the generous cooperation of Clarice M. Mills, of our Evaluation Salon, and her staff. Hair was cut from one side of the head, the head was then shampooed, and hair was then cut from the other side of the head. In this way hair before and after shampoo was available. The shampooed hair from eight heads

was blended, since no one head yielded sufficient hair for complete testing. Unclean hair was then blended so as to be present in the same proportions as the shampooed hair, and half of this blend was shampooed in the laboratory. There were then available three lots of hair—unclean hair, hair washed on the subject, and hair washed in the laboratory. Grease was then extracted from all three portions of hair to determine grease removal. The data from this work are summarized in Table III.

TABLE III
Comparison of in Vivo and in Vitro Shampooing. Shampoo A; 0.5 Per Cent Concentration Tap Water

Method of Shampoo	Per Cent Grease Removal
On living subject	32.1
In laboratory	32.7

As Barnett and Powers predicted, the technique simulates actual shampooing when the same medium is used in each case. Again, however, grease removal is much lower than for wool.

In order to study variation in individual heads, models were shampooed and cuttings of the original and washing hair were extracted. These data are shown in Table IV.

TABLE IV
Grease Removal from Hair Shampooed on Models

	Per Cent Grease Removal		
Shampoo	Average	Range	No. of Models
A	21.3	8-47	12
A. These models used an oil dressing on the hair for three nights before the shampoo	37.0	26-50	6
B	27.6	8-40	8

In no case does the grease removal equal that found for wool, even when an oil dressing was used on the hair for several nights before the shampoo. The models were drawn from factory, office, and laboratory.

Barnett and Powers pointed out that water alone will remove 17 per cent of the grease from wool, the rest apparently being removed by the detersive action of the shampoo. Our work showed 30 per cent removal from wool by water. It has been found that water removes a greater proportion of the removable grease from hair; of the 21.4 per cent removed by Shampoo A,

TABLE V
Comparison of Grease Removal by Shampoo from Wool and Hair

	Per Cent Grease Removal	
	from wool	from hair
Total grease removed by Shampoo A in water	68	21.4
Grease removed by water	30	12.7
Grease removed by shampoo	38	8.7

12.7 per cent is removed by water; this means that only 8.7 per cent of the grease present on the hair is

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removed due to the action of the shampoo alone, and a not inconsiderable portion of this 8.7 per cent consists of dirt which is not removed by water alone. These figures are compared with those for wool in Table V.

This removal of less than 10 per cent grease from hair by the shampoo is a far cry from the 38 per cent removed from wool. Thus, the belief that the synthetics remove excessive amounts of "natural" hair oil is unfounded, and the gentle action of these agents as hair shampoos is demonstrated under more reasonable conditions of test. The hair swatches have been examined after shampooing and the hair is clean and has good luster. This is true of shampoos other than the two reported, and in general shampoos do a satisfactory cleansing job without removing an excessive amount of natural oil.

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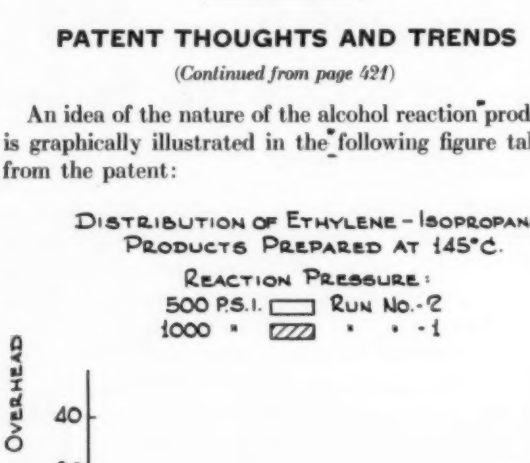
1. Thomsen, E. G. *Soap and Sanitary Chemicals* 22, No. 3, 36-37, 81; No. 4, 47-9, 91 (1946).
2. *Consumer's Reports* 14, 151-5 (1949) (April).
3. Marmoy, Frank Bentley. Brit. 688, 465.
4. Barnett, G. and D. H. Powers. *Soap and Sanitary Chemicals* 27, 50-61 (1951), No. 1.
5. Barnett, G. and D. H. Powers. *Proceedings of the Scientific Section of the Toilet Goods Association* 15, 16-22 (1951) (May).
6. *Consumer's Res. Bull.* 28, 5-8 (1951) (October).

PATENT THOUGHTS AND TRENDS

(*Continued from page 421*)

An idea of the nature of the alcohol reaction product is graphically illustrated in the following figure taken from the patent:



Patents in Review: 1953

(PART II)

In the latter part of 1947 and in early 1948 defendant and others were working on "POP," a preparation employing pectin in place of beeswax. Although this preparation provided 24-hour levels somewhat more consistently than did POB and resulted in a decrease in objectionable side reactions following injection, it was found unsatisfactory and was never marketed, partly because the product had a tendency to plug syringe needles and because the sterilization of pectin during production was difficult, with a consequent possibility of irritation to the patient, and because of the advent of procaine penicillin and the Buckwalter product.

While some of the relatively insoluble penicillin salts or their derivatives were too toxic or irritating for extensive injection use, the procaine salt of penicillin, first announced in October 1947 and first marketed in February, 1948, was found to be relatively free of these objections. It was also found capable of providing, in water or oil suspensions, effective blood levels for about the same period as POB, 24 hours. Such suspensions of procaine are free-flowing liquids which handle easily in a syringe and which produce a minimum of adverse side reactions. However, the procaine settles out very rapidly and extensive and vigorous shaking is needed for resuspension. Also, considerable difficulty has been encountered at times in the use of procaine in oil or water preparations due to the clogging of the syringe needles, probably caused by the large particles of the salt which are preferred for optimum blood levels when used in water or oil alone.

Prior to the spring of 1948 when Buckwalter's product was announced, no commercial penicillin injectable preparation afforded more than about 24-hour blood levels/c.c., a prolongation inadequate for one-shot treatment of syphilis and related treponemal diseases, and each of the prior attempts at blood level prolongation also had disadvantages, of varying seriousness, in administration and/or use.

Buckwalter's Work

Although as early as September 1945 Buckwalter had begun thinking of the development of an improved penicillin injectable preparation, his preoccupation with other problems, such as those connected with the commercial production of POB, prevented his devoting any substantial amount of time to investigating new forms of penicillin injectables until the end of 1946 when he was finally able to embark on actual experimental work. On December 2, 1946 he put in writing for the first time what he thought were the most promising of his ideas for an improved penicillin injectable. Leading the list was the suggestion of peanut oil gelled with aluminum monostearate. Later that month a preparation comprising peanut oil gelled with aluminum monostearate and using calcium penicillin was formulated under Buckwalter's direction. Preliminary experiments with the gelled oil preparation led Buckwalter to conclude that it would provide blood levels which lasted as long as those of POB and probably somewhat longer, while avoiding POB's administration difficulties and its adverse reactions due to beeswax.

The fact that aluminum monostearate is a metallic soap containing aluminum raised some question as to its suitability for injection, but Buckwalter established its safety and effectiveness through tests which he directed to be made first on animals and then on humans.

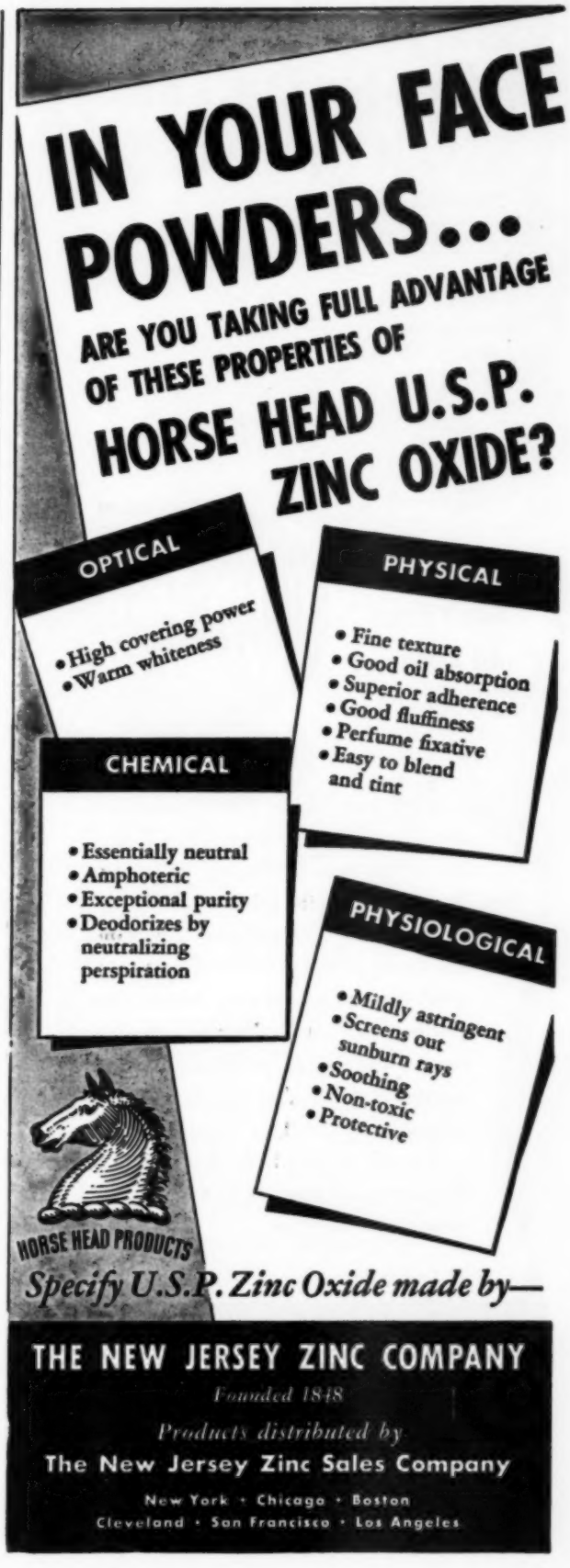
In developing the gelled oil preparation, Buckwalter tried various types of oil and oil equivalents as the vehicle to be gelled, gelling agents other than aluminum monostearate and variations in the amount of gelling agent.

During Buckwalter's experiments he tested several types of penicillin in various forms of his gelled oil vehicle. Aluminum penicillin, which is very insoluble in water as compared to other penicillins, was tried out in the summer of 1947 but it provided only about the same blood level prolongation as the highly soluble sodium and calcium penicillins.

Toward the end of 1947, when procaine penicillin was announced, Buckwalter experimented with this in his gelled oil vehicle, although it was more soluble than aluminum penicillin, and later found quite remarkable increase in blood level duration, from about 24 hours with sodium, calcium or aluminum penicillin to about 48 hours with procaine penicillin.

The evidence available to Buckwalter in the fall of 1947 and early in 1948 was that large particles of penicillin gave longer blood levels than small particles in POB, at least in liquid POB, for which the Food and Drug Administration had prescribed that at least half of the penicillin have a minimum particle size of 50 microns, and that according to the general rule of solutions large particles with their smaller surface area per unit weight take longer to go into solution than do small particles. It was in the face of this evidence that Buckwalter, pursuing a contrary concept, discovered that by using in his gelled oil vehicle procaine penicillin of a particle size less than 50 microns, he obtained a further increase in animal blood level duration, up to 72 hours in most cases when procaine particles below about 40 microns were used, and at least 96 hours in 80 per cent of the cases when using "micronized" procaine (having the vast majority of particles under five microns). Clinical tests confirmed these findings.

The preferred embodiment of Buckwalter's injectable comprises 300,000 units of micronized procaine penicillin per cubic centimeter of a vegetable oil gelled with two per cent aluminum monostearate. In the great majority of patients, this product provides therapeutically effective concentrations of penicillin in the blood for about 96 hours (four days) following a one cc. injection. The preparation is less viscous than even liquid POB and is more easily drawn into a syringe and expelled from it, without heating. A small gauge needle may be used for both withdrawal and injection since the small penicillin particles present no problems of blocking the needle. Also, there is less tendency for the penicillin to settle out than in earlier preparations because the gel affords a very stable suspension, and the product thus requires little shaking to insure complete and uniform distribution of the particles throughout the vehicle. The preparation causes markedly fewer objectionable side reactions, such as hypersensitivity reactions, generalized allergy reactions, muscular irritation, necrosis and hemorrhage, than did POB.



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Buckwalter's invention provided the first truly adequate solution to the pre-existing problems of a satisfactory long-lasting penicillin injectable. It provided advantages long sought, filled a definite need in the treatment of disease, and marked a great step forward in the field of medicine. It has been called by defendant "the perfect repository penicillin injectable."

Prior Art Publications and Patents

A Treatise on Pharmacy, Parrish (4th Ed. 1874), D. Ex. BB.

A Manual of Pharmacology, Sollmann (3d Ed. 1926), D. Ex. CC.

The Pharmacological Basis of Therapeutics, Goodman & Gilman (1941), D. Ex. DD.

These pharmacological textbooks discuss therapeutic uses of vegetable oils, animal fats, hydrocarbons and waxes as ointments. The use of vegetable oils for injection is mentioned, but there is no mention of gelled oils for any purpose.

Ungentum Aluminii Stearatis, Fischer and Lowell, Ohio State Medical Journal 38:756 (1942), D. Ex. EE-1.

This article describes ointments composed of mineral oil, fat or paraffin, mixed and gelled with aluminum stearates, the aluminum salts furnishing the therapeutic effect. There is no suggestion of injection.

Austrian Patent 90,278 to Stein and Wiechowski for "Process for the Preparation of Aluminum Salts of Fatty Acids for Therapeutic Purposes" (1922), D. Ex. EE-2.

This patent covers a process for the preparation of aluminum salts and fatty acids for therapeutic purposes, particularly ointments. There is no suggestion of injection.

United States Patent 2,364,151 to McCarthy and Ambrose for "Lubricants" (1944), D. Ex. EE-3.

This patent describes lubricants formed by gelling mineral oils and having some similarity to petrolatum. Brief mention is made of the use of the gelled oil for ointment purposes. Neither vegetable nor animal oils are mentioned, and there is no mention of injectable preparations.

The Preparation of Aluminum Oleate, Stich, Pharmazeutische Zentralhalle 63:261 (1922), D. Ex. EE-4.

Aluminum Oleate, Wiechowski, Munchener Medizinische Wochenschrift 68:34 (1921), D. Ex. EE-5.

These two articles discuss topical uses for aluminum oleate in preference to lead oleate.

DDT Penetration Prevented By Adding Aluminum Stearate to DDT-Kerosene Solutions, Ebeling, Journal of Economic Entomology 38:689 (1945), D. Ex. EE-6.

A report of aluminum stearate mixed with DDT-kerosene solutions to maintain insecticide on the surface of the plant being sprayed.

A method of Prolonging the Action of Penicillin, Romansky and Rittman, Science 100:196 (1944), D. Ex. EE-7.

This article was the first anouncement of Romansky's

POB preparation employing oil-wax vehicles for the injection of penicillin.

Effect of Sulphonamide Preparations on Experimental Infected Wounds, Hawking, The Lancet (London) 243:507 (1942), D. Ex. EE-8B.

Methods for the Local Application of Sulphanilamide, Hawking, British Medical Journal, p. 685 (November 15, 1941), D. Ex. EE-8B.

The Rate of Absorption of Sulphonamides In Vitro and In Vivo After Local Application, Fuller, Hawking & Partridge, Quarterly Journal of Pharmacy and Pharmacology (London) 15:127 (1942), D. Ex. EE-9A.

The Effect of Various Media on the Rate of Absorption of Sulphanilamide, Fuller, Hawking & Partridge, Quarterly Journal of Pharmacy and Pharmacology (London) 15:136 (1942), D. Ex. EE-9B.

A Clinical and Laboratory Evaluation of the Action of Sulfonamide Ointments, Cochran, Surgery, Gynecology & Obstetrics 79:326 (1944), D. Ex. EE-10.

An Evaluation of Sulfonamide Ointment Bases, Howard, New England Journal of Medicine, 232:698 (1945), D. Ex. EE-12A.

The Absorption of Sulfathiazole from Wounds, Waud, Canadian Medical Association Journal 51:229 (1944), D. Ex. EE-12B.

These articles describe ointments containing various sulfa drugs. They describe water and oil emulsions, oil-wax paste, liquid paraffin, petroleum jelly, polyvinyl alcohol, hydrous wool fat, methyl cellulose and saline solutions as vehicles for the topical application of the sulfa drugs. One or more of them contains some discussion of studies on the rate of release of the sulfa drugs from different ointment bases. The articles make no mention of gelled oil bases, or of any injectable preparations, or of penicillin.

Oral Administration of Penicillin in Corn Oil and Lanolin, Perlstein, Kluener and Liebmann, Science 102:66 (1945), D. Ex. EE-11.

A lanolin and corn oil mixture is described as a vehicle for the oral administration of penicillin.

United States Patent 2,055,083 to Klein and Grosse for "Pharmaceutical Preparation" (1936), D. Ex. EE-14.

Repository Injection of Penicillin in Water-in-Oil Emulsion, Cohn et al., Proc. Soc. Experimental Biology & Medicine 59:145 (1945), D. Ex. EE-13.

Theoretical & Experimental Bases of the "Durant" Preparations, Grosse, Pharmazeutische Industrie 1:3 (1954), D. Ex. EE-15.

Durant Preparations, Heinz, Chemiker Zeitung No. 11/12, p. 114 (1942), D. Ex. EE-16.

The Klein and Grosse patent and these technical articles all describe water and oil emulsions to be used as injectable vehicles for various medicaments. They make no mention of gelled oils. The Cohn et al. article shows that penicillin was found to lose its potency rapidly when put into an aqueous emulsion. The patent refers to the addition of certain stabilizers to the emulsion and these are said either to increase or to retard

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the release of the medicament. Sodium stearate is said to accelerate the release. There is no mention of aluminum, zirconium or germanium stearates, which are described by Buckwalter as the only ones he found suitable for his purpose.

Polyvinyl Alcohol as a Medium for Local Penicillin Therapy, Perryman, The Lancet (London) 249:778 (1945), D. Ex. EE-17.

This article describes polyvinyl alcohol vehicles, including water solutions of this substance gelled by adding congo red, for local application and administration to surface cavities of the human body. Parenteral injection is not mentioned.

Possibilities of Polyvinyl Alcohol, Lesser, Drug and Cosmetic Industry 56:442 (1945), D. Ex. EE-18.

Polyvinyl alcohol is here described as a blood plasma substitute, a protective wound coating, a nose spray, a catgut substitute for surgical sutures, and an emulsifying agent for cosmetics. The article mentions that polyvinyl alcohol is suitable for oral and topical administration, but is not suitable for parenteral administration.

United States Patent 2,487,336 to Hinds, for "Penicillin Product" (1949), D. Ex. EE-19.

The coating of penicillin particles with liquid jojoba wax is here disclosed, and all routes of administration, oral, topical and parenteral, are suggested for the coated penicillin. It is also indicated that jojoba wax may be used in the carriers employed for the topical and parenteral preparations, but the full compositions of these carriers are not indicated.

Metallic Soaps, Mallinckrodt Chemical Works (1946), D. Ex. EE-20.

This describes a variety of uses of oils gelled by a variety of stearates, with emphasis on the lubrication, paint and waterproofing fields and mention of such other uses as cosmetics and ointments. Substantial information is given as to the technique of gelling oils by the various stearates, with emphasis on the production of strong gels. No mention is made of any use of the stearates, in injectable preparations.

Metallic Stearates, Monsaroff, Canadian Chemistry and Process Industries 26:193 (1942), D. Ex. EE-21.

This article repeats some of the information appearing in D. Ex. EE-20. It bears an earlier date but is less complete.

United States Patent 2,519,112 to Coghill et al. for "Penicillin Salts of Aminoacid Esters of Sterols and Preparation Thereof" (1950), E. Dx. EE-22.

This discloses a very complex amino salt of penicillin which is described as less soluble than the forms of penicillin known at the time the patent was applied for (February 20, 1947). It is substantially different from the relatively simple procaine salt, though the latter is an amine. Uses of the new penicillin in plain oil and in the oil-wax vehicle of Romansky are suggeeted. There is no suggestion of a gelled oil vehicle.

Colloid Chemistry Theoretical and Applied, Alexander (1928), D. Ex. FF-1.

Colloidal Phenomena, Hauser (1939), D. Ex. FF-2.

Physical Methods of Organic Chemistry, Weissberger (1945), D. Ex. FF-3.

These are general textbooks on the indicated subjects. They have no disclosure of injectable preparations.

Hauser discloses the general law of solubility that a substance goes into solution more rapidly when it is in small particle form than when in large particle form.

Invention Met with Success

Doctors accorded a prompt and warm reception to the Buckwalter invention because of its numerous points of superiority over POB and other predecessor techniques and preparations for prolonging blood levels. Most of them quickly stopped buying POB and began buying the Buckwalter product. The resulting decline in the demand for POB and the competitive pressure to make and sell the new type of product caused all penicillin manufacturers in the United States to go over to the production of the Buckwalter product and to discontinue production of POB. Shortly after the appearance of the Buckwalter product, quantities of previously marketed POB were returned and this latter product dropped from the market. It is not being sold today in any form. The advent of the Buckwalter invention was a severe blow to POP, which never reached the market.

The demise of POB was not alone caused by the advent of the Buckwalter invention. Procaine penicillin in oil and water suspensions providing blood levels comparable to those of POB without certain of its disadvantages, also attracted doctors who had used POB. For therapy where maximum prolongation of blood levels after a single injection was not a prerequisite, as for mild infections or where the doctor was certain of seeing the patient at frequent intervals, procaine in oil alone or in water was adequate and some doctors, especially in hospitals, have used it in lieu of the preferred form of the Buckwalter invention. Even in these applications, however, other doctors have preferred the Buckwalter invention because of the disadvantages experienced with procaine in oil alone or in water due to settling of particles and plugging of needles. And in the treatment of venereal diseases and treponomal diseases related to syphillis, POB gave way, not to procaine in oil or water, but virtually completely to the Buckwalter invention.

Eleven out of the fourteen major manufacturers of penicillin products in the United States including Abbot, Lilly, Merck, Pfizer, Sharp & Dohme, Squibb, Upjohn and Wyeth have taken licenses under Buckwalter patent 2,507,193 and, in some instances, also under the applications on which that patent later issued. The average license royalty has amounted to only about one-fifth cent for each 300,000 unit injection of the product.

Neither plaintiff's practices in offering licenses to these manufacturers, nor the terms of the licenses them-

selves, singly or jointly, constitute any misuse of Buckwalter patent 2,507,193.

From the time of its introduction in the spring of 1948 up to the trial of this action in July 1952, over 100,000 billion units of the preferred form of the Buckwalter invention (enough for one-third billion 1 cc. injections) have been sold in the United States alone. The total dollar value of these sales has exceeded $50,000,000.

Clinical investigations of the treatment of syphilis with the preferred form of Buckwalter's invention revealed that therapeutically effective levels of penicillin could be maintained in the blood for from six to eight days in a high percentage of patients who received a single 4 cc. injection of the preparation (containing 1,200,000 units) and for a slightly longer period in patients who received 8 cc.'s in a single injection or two simultaneous 4 cc. injections.

In the fight against syphilis in this country, the preferred form of Buckwalter's invention has been named the product of choice by the United States Public Health Service and, since the advent of this product, treatment centers and boards of health all over the nation have been using and recommending it. The product is virtually the sole product used today for the treatment of syphilis. A great deal of the remarkable decrease in the past several years in the prevalence of syphilis, throughout the eastern and northern United States especially, is credited to the Buckwalter invention.

Using single shot injections of 1,200,000 units (4 cc.) of the Buckwalter product exclusively, mass eradication programs have begun against pinta in Mexico and, under the United Nations, against yaws in Haiti (over 500,000 natives having been already treated there), against bejel in Israel, and against these and similar diseases in Indonesia, Yugoslavia, Iran and Iraq. Pilot experiments using this product against such diseases have also been started in Egypt, Venezuela and the Philippines.

No POB using procaine penicillin has ever been sold. What evidence there is in the record regarding experimental work with this preparation shows that its blood level prolongation is inferior to that provided by the preferred form of the Buckwalter invention. Also since dosages of POB administered in one injection are limited by the adverse reactions caused by the wax it contains the commercially non-existent POB with procaine penicillin is undesirable for single shot mass eradication programs and has not been so used.

The court held the patent to be valid and infringed.

RECENT PATENTS

2,663,741—**Shulton, Inc. — Propenyl - Guaethol. Tastes like blend of heliotrope, vanilla and violet.**
2,663,745—**Standard Oil Dev.—Removal of Malodorous Impurities from Alcohols with Small Glass Particles.**

(Continued on page 450)

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(Continued from page 449)

2,664,381-2—McKesson and Robbins — Parasiticidal Lotions.
2,664,383—Colgate-Palmolive — Benzoyl Resorcinol: Color Stabilizer in Toilet Waters and Perfumes.
2,664,417-8—Food Research Labs. — Prepn. of Streptomycylamines.
2,664,419-20—Mathieson — Purification of Antibiotics.
2,664,421—Hoffmann-La Roche—Increasing Water-Solubility of Riboflavin.
2,664,423—G. D. Searle — 4 - (Cyclopentanopolyhydrophenanthr-17-yl) Imidazoles.
2,664,424—Ciba—Dioxo-Piperidines.
2,664,428—Ciba — Δ^4 - 17 alpha - Hydroxy - 3,20 - Diketo-Pregnen-21-Als.
2,664,444—Winthrop-Stearns—N - (n - Dodecyl) - N - (3,4 - Dichlorophenethyl) - N,N - Dimethyl-Ammonium Compounds.
2,665,218—J. A. Saffir—Dental Cements.
2,665,235—R. Fleischmann — Calcium Lactate Suppository.
2,665,274—Merck—Steroid Pyridinium Salts.
2,665,275—Allen and Hanburys (Eng.) — 2,4 - Diamino-7,8 - Disubstituted Pteridines.
2,665,278—Merck—Gamma-Hydroxy Quaternary Ammonium Compounds.
2,665,279—Hoffmann-La Roche — Heterocyclic Antituberculous Compounds (e.g. 1-isonicotinyl-carbohydrazide).
2,665,987—Sunkist Growers — Attractants for Cattle Feeds.
2,666,012—E. A. Ferguson—Nose Drops.
2,666,013—E. A. Ferguson—Pruritus Therapy.
2,666,014—Hiram Walker & Sons—Biological Process for Riboflavin.
2,666,015—G. D. Searle—Biochemical Processes for the 11-Hydroxylation of Steroids.
2,666,016—G. D. Searle—Biochemical Processes for the Oxygenation of Steroids.
2,666,053—Hoffmann-La Roche—1 - Isonicotinyl - 2,2-Disubstituted Hydrazines.
2,666,054—American Cyanamid Co.—Substituted Pyrazines.
2,666,055—Am. Cyanamid Co.—1 - Thiocarbamyl - 4-Heterocyclic Piperazines.
2,666,057—Eli Lilly—Substituted Thiobarbituric Acids.
2,666,058—Ciba—Undecylenic Acid Esters of 8-Hydroxyquinolines.
2,666,060—Ciba—1,3 - Bisaminoalkyl - 3 - Phenyl - 2,5-Dioxopyrrolidines.
2,666,064—S. B. Pencik—Manufacture of 3-(alpha-Phenyl-beta-Acetyl-Ethyl)-4-Hydroxycoumarin.
2,666,066—Abbott Labs.—Ethylenediamine Salts of Cyclopentanopolyhydrophenanthrene - 3 - Monosulfates.
2,666,067-68-72—Upjohn—Oxidation and Halogenation of Steroids.

2,666,069—Am. Cyanamid—Prepn. of Δ^4-Pregnenes.

2,666,070-1—Upjohn — 11 - alpha - Hydroxyprogesterones.

2,666,728—Clifford R. Smith—Mange and Fungus Eczema Preparation.

2,666,729—Merck—Purifying Streptokinase.

2,666,760—Am. Cyanamid Co.—Insoluble Methyl-Benzodiazepin Salts of Penicillin.

2,666,762-3—G. D. Searle—Detrivatives of 3-Amino 2,3,-Dihydroxy (or 2,3-dihydro) thionaphthene-1, 1-Dioxide.

2,666,769—G. D. Searle—17-Glycolyl-Estradiols.

2,666,784—Badische Anilin & S. F.—Nonhygroscopic Choline Salts.

2,666,789—G. D. Searle—Alpha, Beta-(Polyhydroxyaryl)-Alkanamides.

2,667,439—Irwin, Neisler & Co.—Theophylline Composition Containing Antinauseant Factors.

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2,667,484—Upjohn—2,4 Diaminopteridine Aldehydes.

2,667,485—Upjohn — 2,4 - Diamino - 6 - (Hydroxyalkyl) Pteridines.

2,667,486—Research Corp. — 2,4 - Diamino Pteridine.

2,667,493—May & Baker Ltd.—Bis-Quaternary Salts.

2,668,135—J. A. Vaichulis & A. C. Ivy—Germ-Counteracting Compositions.

2,668,136—By-Products Processing Labs.—Tetradecylamine Salt of O-Phenylphenol.

2,668,137—Merck — Vitamin B_{12} Elution from Charcoal.

2,668,170—F. J. Sowa — Heterocyclic Mercury Amine Fungicides.

CLEANSING CREAMS

(Continued from page 351)

greater degree than previously and there are some indications that formulations be kept within its range. Preparations of this type are more easily made now than previously thanks to the large number of synthetic materials available which can function at this pH range —and preparations of this type seem a good possibility in the future—as well as incorporation into the cream

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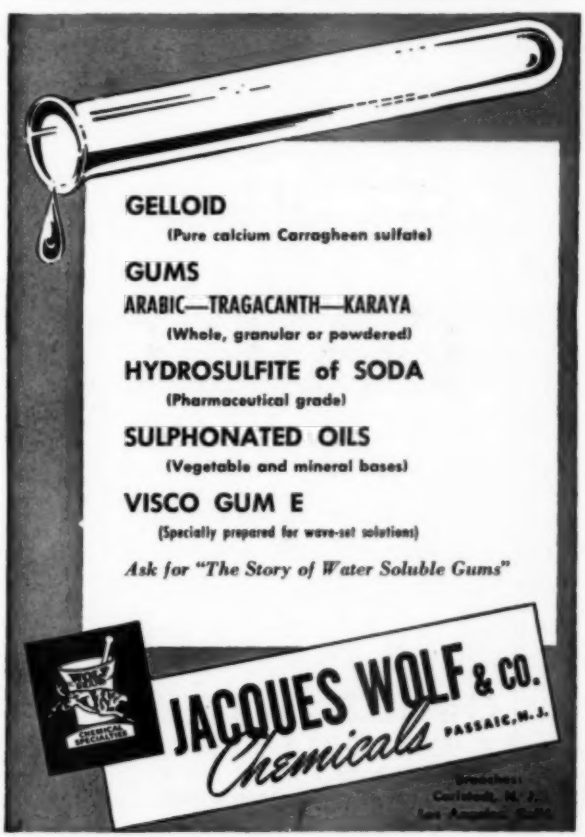


of substances which enhance the feel of the skin after this use. Radical departures however have attached to them a large element of risk and therefore, the cautious approach.

At the same time there have been introduced to the market new types of makeup preparations, and new types of hand lotions which may be considered as radical departures from the conventional which have been highly successful, so it may be that a new generation is maturing which is not being influenced by standardized formulations and which is looking for something new and different.

INDUSTRY'S BOOKS

(Continued from page 429)

Medical Treatment of Disease, *by Christian, Friend & Schnither, 965 pp., Loose-leaf binder, flexible cover, Oxford University Press, New York, (1953),* **$25.**

The concepts of medicine gradually changed from the older notions of structural disease to the functional aspects, and thus created a new premise for the introduction of rational treatment and the evaluation of empirical methods. With the advent of the antibiotics, hormones, vaccines, and the accessory food substances, it became apparent to Dr. Henry A. Christian that treatment called for a companion book for the loose-leaf volumes and the standard textbooks of medicine. He invited Dr. Maurice A. Schnitker and Dr. Dale G. Friend to join with him in writing a book of living therapy. Dr. Christian drew from his vast experience of academic and hospital medicine. Dr. Schnitker utilized the unusual opportunities of general practice to elucidate the value of the newer drugs and procedures. Close associations in pharmacology and clinical medicine enabled Dr. Friend to provide a balance of fundamental principles and practical applications in treatment. The present textbook on treatment, with its loose-leaf composition and arrangement for the introduction of new and important information, has fulfilled the purposes of the authors. A feature of the text is the omission of diagnostic and etiological data that rightfully belong in the textbooks on practice. Accordingly, the book has become a treatment volume in its own right.

Soap Manufacture, *Volume I, by J. Davidsohn, Consulting Chemist, Haifa, Israel, E. J. Better, Technical Director Shemen Israel Oil Industries, Ltd., and A. Davidsohn, Consulting Chemist, Haifa, Israel, 525 pp., Interscience Publishers, Inc., New York, (1953), Cloth,* **$12.50.**

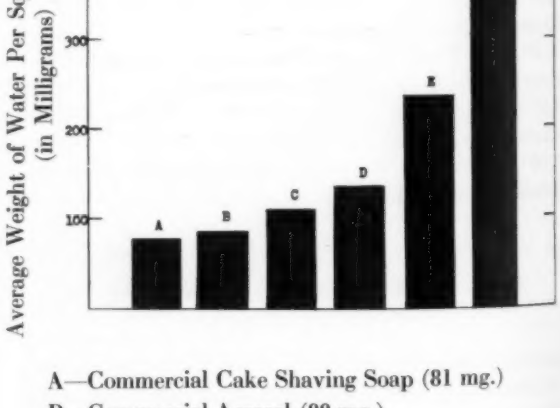
Since 1928 considerable progress has been made in our understanding of the structure of soap and soap solutions, of the phase behavior of soap, and the theory of detergency; also, from the practical point of view, new manufacturing processes have been developed, new raw materials and builders have been introduced, and synthetic detergents have become an important factor in the soap industry. Because of these advances in the science and practice of soapmaking, a comprehensive treatise on the subject seems needed and the present two-volume work is intended to fulfill this need. The first six chapters of Volume I are devoted to the theoretical principles that require understanding as a foundation for studying the practical soap processes which are described in the subsequent chapters. Other chapters of this volume deal with the raw materials used in the industry. Contents: 1. History and Statistics of the Soap Industry. Part A: Theoretical Principles of Soap Manufacture. Part B: Raw Materials of Soap Manufacture: Inorganic and Organic Soap Builders and Fillers, etc. Part B (continued): Raw Materials of Soap Manufacture: The Fatty Raw Materials. Part C: Practical Soap-Boiling Processes. Part D: Special Soap Products. (Volume II of this work will be published at a later date.)

MOISTURE AND SHAVING CREAMS

(Continued from page 347)

contributed by the shaving cream is found. If this weight of water provided by the shaving cream is added to the amount of water applied to the face before the application of the shaving preparation (15 milligrams per square inch) the total weight of water in contact with each square inch of shaving surface is obtained. These totals are listed in Figure I.

Fig. I. TOTAL WEIGHT OF WATER IN CONTACT WITH THE FACIAL SURFACE



A—Commercial Cake Shaving Soap (81 mg.)
B—Commercial Aerosol (88 mg.)
C—Commercial Lather (113 mg.)
D—Commercial Brushless No. 1 (139 mg.)
E—Commercial Brushless No. 2 (239 mg.)
F—Experimental Brushless (TV) (365 mg.)

TABLE III

WATER CONTENT OF SHAVING PREPARATIONS UNDER CONDITIONS OF ACTUAL USE

Sample	Percentage Water
Commercial Cake Shaving Soap	93.7 per cent
Commercial Aerosol	83.7 per cent
Commercial Lather	84.1 per cent
Commercial Brushless No. 1	58.2 per cent
Commercial Brushless No. 2	62.8 per cent
Experimental Brushless (TV)	90.9 per cent

With the exception of the experimental brushless (TV), the brushless shaving creams are seen to be lowest in water content.

The data show that the brushless creams deliver more water to the shaving surface than the cake soap, lather, or aerosol, preparations.

Summary and Conclusions

Pre-shaving facial preparation is one of the important parameters in shaving. The preliminary soaping of the face with hot water removes the natural oils from the whiskers and permits the water provided by the shaving cream to be absorbed by, and to soften, the beard. The water delivered to the whiskers by the shaving cream is its most significant characteristic. This study reports the quantitative determination of water in contact with the face with various commercial and experimental shaving preparations under conditions of actual use.

Although the summarizing data in Figure 1 are dependent upon individual characteristics in the application of shaving preparations, the data are clearly indicative of the orders of magnitude which exist. The results show that the brushless creams can be expected generally to deliver more water to the beard than the other shaving substances. The cake shaving soap, lather and aerosol preparations supplied approximately equivalent amounts of water to the beard. With the exception of the experimental brushless (TV), the brushless shaving creams are lowest in water content. However, since much more brushless shaving cream by weight is applied to the face, the total water supplied by the brushless preparations is greatest.

The bulk of the water in contact with the face is contributed by the shaving cream and not by the initial wetting of the face before the application of the shaving cream. This preliminary moistening of the face can be expected to provide no more than about 15 to 20 milligrams of water per square inch of face.

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